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OUR SHEEP AND THE TARIFF.

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THE principal object of this work is to investigate the present condition and future possibilities of the wool and mutton industry of the United States, with a view to ascertaining the advisability of continuing our present tariff on raw wool. As a preliminary to this investigation, I have tried to place before the reader the economic basis on which rests the theory of protection, and also to point out the cause of our present agricultural depression.

It gives me pleasure to take this opportunity to thank Prof. Simon N. Patten, of the University of Pennsylvania, for his careful review and judicious criticism of the work.

I also desire to thank all who have assisted me in the collection of my facts. The number of those who spent time and pains in answering my very numerous letters and questions prevents me from mentioning individual names. I fully realize, however, that any merit which the last five chapters of this book may possess is due to the kindness shown to me by those who are actually engaged in raising sheep or in handling wool.

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OUR SHEEP AND THE TARIFF.

CHAPTER I.

THE TARIFF.

FREE-TRADE or protection? This is the present Alpha and Omega of political controversy. True, the word "free-trade" is more or less avoided by many of its disciples. They prefer to be called "Tariff Reformers," or announce themselves in favor of a "tariff for revenue only." But the rival principles of free-trade and protection lie at the bottom of every argument. "Revenue Reformers" regard the Tariff as only a temporary expedient—a nursery for "infant industries;" while none of those who advocate "a tariff for revenue only," at heart regard a tax on imports as an economical method of defraying the expenses of the government.

It is not my purpose to discuss the general subject of import duties. Sydney Smith said of Bishop Berkeley, that he had ". . . . destroyed the world in one volume octavo;" but it would have required, even from a Berkeley, a far greater expenditure of pen and ink to thoroughly discuss the tariff. I shall therefore confine myself to one portion of the field, namely: *The Tariff on Wool.*

It is necessary, however, to first dispose of a preliminary question. If the theory of free-trade is correct, all impost duties are necessarily bad; and it will be useless to investigate the actual conditions of any industry, ex-

cept to furnish an example of the truth of our conclusions. On the other hand, if there are circumstances in which a tariff will be beneficial to a nation, it will be necessary to determine, by an examination of facts, whether our present situation warrants us in protecting the wool-grower. A purely theoretic study of economic questions is of doubtful ultility, but, nevertheless, the practical must be preceded and combined with the theoretical, before we can expect useful results. In the present case this combination is unusually easy; for though the theoretical part of many tariff discussions has been confused by much useless disputation, the two lines of argument, one taken by the free trader and the other by the protectionist, are in reality very simple.

Basiat, in his entertaining little work on "Sophism of Protection," has placed the theoretic basis of free-trade in its clearest and best light. The idea which lies at the foundation of his argument, as at the foundation of free-trade thought generally, is that a reduction in the price of any commodity is always beneficial to a people. No one will care to dispute that a general reduction in prices would be advantageous, provided wages remained the same; but it is the idea that a fall in the price of any single commodity is necessarily a good to the whole country which is peculiar to the free-trader. He thus makes cheapness the criterion of efficient production. To defend this position each commodity is taken up in turn. Man is regarded as first demanding article A. As a consumer of A it is desirable that he should buy A as cheaply as possible. Then some other commodity is taken, and the same line of reasoning is adopted with a similar result; while from the whole, it is concluded that a tariff on any article, which tends, temporarily at least, to raise its selling price, is always and necessarily bad.

To be of any value in this connection the proposition

"cheapness is always desirable," must be universal. It must not simply hold under certain conditions; for then the doctrine of free-trade, which rests on it, will cease to be applicable to all countries at all times. The proposition itself rests, as we have shown, on a method of reasoning which separates each commodity, and the desire for it, from all other desires and commodities; treating each in turn as if it alone existed, and applying the law deduced from such an examination to a world where men seek simultaneously a great variety of organic and inorganic substances.

Let us on our part turn to the world as actually constituted. We find the laborers, apart from those doing purely intellectual work, engaged either in agriculture or manufacturing. I use these terms in their broadest sense. By "agriculture" I mean any industry in which land is a necessary element of production; and under the term "manufacture" include all other occupations.*

An increase in the demand for manufactured articles has no permanent effect in raising the price. Four men can attend to twice as many looms as two. If twenty men can turn out forty yards of cloth in a day, forty men, with twice as much machinery, can make eighty yards, or even more, if the increase in numbers makes possible more efficient organization of labor. But whether any slight increase in the return per man will take place or not, the point I wish to emphasize is this, that an increase in the demand for manufactured com-

*The reader may find a full discussion of land and its rent, which forms the basis of this discussion, in the following works: Ricardo, Principles of Pol. Econ. and Taxation, Chap. II; James Mill, Elements of Pol. Econ., p. 17; McCulloch, Principles of Pol. Econ., Part III., Sect. V.; J. S. Mill, Principles of Pol. Econ., Book II., Chap. XVI.; Fawcett, Manual of Pol. Econ., Book II., Chap. III.; Jevons, Theory of Pol. Econ., Chap. VI.; Walker, Pol. Econ., Part IV., Chap. II.; Patten, Premises of Pol. Econ., Chaps. I. and II.; George, Progress and Poverty, Book II., Chap. II.

modities will not be followed by a permanent rise in prices.

In agriculture it is different. Each acre of land has its limit of productive capacity. Skill and labor can add to the total product, but there is a point beyond which no more can be produced. You may grow a stalk of wheat on every square inch of ground, but you cannot grow two stalks in the same place. Again, if you double the amount of labor on an acre, while you may and probably will increase your product, you may not double it. Two men working in a field may raise more than if one man worked alone, but the proportion that each receives may be less than the amount he could raise working by himself.

What is true of each field taken separately is true of the country, as a whole. When there is only a small amount of a commodity raised, then an increase in the demand for it, attracting capital towards the industry, may open new sections of the country, and ultimately increase, not only the amount produced, but the proportional return per man, *i. e.*, the return measured by the total labor expended, and the total result. On the other hand, if much land is already devoted to the production of some one product, an increase in the demand will cause lands less favorable for its cultivation to be utilized. Production becoming more difficult, the "proportional return" will be less than before. The increased labor will not meet with a like increase in reward. When the cultivation of any commodity in the country has been carried to this extent, then it is said that the point of diminishing returns for that commodity has been reached. If after this more of the commodity is produced in response to a greater demand, the average effort required to produce a unit quantity of the commodity is greater than before. Such an increase would naturally lead us to expect an increase in its price. But

the actual effect on the price is even greater than we might at first anticipate. Thus suppose it takes 2,000,000 laborers working for two months to raise 200,000,000 lbs. of tobacco. The demand increases. If the point of diminishing returns for tobacco has been passed, the increase in the product has to be secured by growing tobacco on land less suited to its cultivation. The difference between the average cost of production on the old and new tobacco lands will depend in each case on the physical conditions of the country. We may suppose that it will now take 2,500,000 men, working for two months to raise 240,000,000 lbs. of tobacco; the 40,000,000 lbs. representing the increase in the amount of the demand. If tobacco were grown by a co-operative association, each worker would receive 96 pounds of tobacco, instead of the 100 lbs. which he received before the increase in the demand necessitated a resort to poorer tobacco soils. But tobacco, or any other commodity, is not grown on a co-operative plan. Each man cultivates his own land, or the land he has rented, and no two acres are exactly alike. Every pound of tobacco is thus grown under different conditions, and has a different cost of production. At any one time, however, for similar grades, there is but one price; and this price which rules each single article of the product must be high enough to repay the labor expended on that portion raised under the most unfavorable conditions. Men will not long continue to produce any commodity at a loss. If prices do not warrant growing a certain product on some of the land now utilized for its cultivation, those lands will cease to be used. Agricultural prices then are not governed by the total effort required to raise the entire product; but by the cost of production of that portion of each commodity grown on the poorest land. The poorest land used for the cultivation of each commodity is often spoken of as the present margin for its cultiva-

tion. In our illustration the increase in price per pound of tobacco may be much more than four per cent., which represents the average decrease in the return for each man's labor, if tobacco was raised on the coöperative plan. The rise in price is represented by the difference between the poorest tobacco lands utilized for tobacco, before the increase in the demand and that used after such increase. The difference depends upon the change in the amount of the demand and the physical conditions of the country. It may be five, ten, or, if all the lands in any degree suitable for tobacco have already been utilized for the production of that commodity, even twenty or thirty in exceptional cases.

Not only does the increase in the demand for an agricultural product, if the point of diminishing returns for its cultivation has been passed, raise the cost of the product to the consumer; but it has a bad effect on the distribution of wealth. That portion of the wealth of the community which goes to the owner of land for the use of the natural properties of the soil, is called rent. I use the term in a restricted sense, and do not include the return from the price paid for houses and barns, but simply the price which is paid for the fertility of the soil, or on account of the land's desirable position. Let us see how the excessive demand for some one product affects this kind of rent. The price for any commodity being regulated by the cost of that portion which is grown under the most unfavorable conditions, or in other words on the margin for its cultivation, the difference between the price and cost of production of the commodity on lands well suited for its cultivation is often very great.

If the poorest land ultilized for wheat yielded ten bushels to the acre, one who happened to own land which could produce fifteen bushels per acre could demand five bushels of each crop from the person who

desired to lease it from him. Any increase in the price of wheat would not benefit the tenant; it would simply compel him to pay the owner so much more rent. That part of the rent which is due to the land's capacity for growing wheat, would be equal to the price of wheat per bushel multiplied by the difference between the average number of bushels produced on that land, and the average number of bushels raised on land at the present time on the margin of cultivation for wheat. Thus, with every increase in the demand for wheat, after the point of diminishing returns has been passed, two factors tend to increase the money-rent of wheat lands. The margin for the cultivation of wheat falls; therefore the difference between the amount of wheat which can be raised on any old wheat lands and the lands on the margin for the cultivation of wheat is increased. But at the same time the price of wheat per bushel has risen; for price is regulated by the cost of production on the margin of cultivation for wheat, and that margin having fallen, the cost of production has become greater. The farmer who rents his land from the owner is not benefited, nor is he injured, by a rise in rents. Practically he is always laboring on the margin of cultivation. If he happens to use better soil than his neighbor, he pays a higher rent for the privilege.

Thus we perceive that the increase in the price of any agricultural commodity owing to an increase in the demand, while it may injure the consumers, does not benefit the farmer as a farmer, but rather tends to create a landed gentry who live not on their own labor or savings, but on those of others; and whose incomes are not due to the efforts of themselves, or their ancestors, but to the fact that they own a piece of ground, which has become a natural monopoly because it is peculiarly adapted to the growing of a certain commodity.

Our short investigation has shown us this much con-

cerning production: There is a marked contrast between manufactured and agricultural commodities. With the former an increase in the demand has no effect on the price or the distribution of wealth; while with the latter, such an increase may, under certain circumstances, not only have a great and permanent effect on the price, but, by increasing rent, may tend to cause an unequal distribution of wealth. The key to the problems which surround the subject of foreign trade, as also the refutation of the proposition that the cheapness of any commodity is always beneficial, lies in a recognition of the fundamental distinction between the effects of increased demand on the prices of agricultural and manufactured commodities.

Remembering this distinction, let us take the following illustration of the possible effect of a tariff on all clothing.

Suppose we have two countries "A" and "B." In "A" the money rate of wages is one dollar per day; in "B" for the same work, eighty cents. The high rate of money wages in the first country we may suppose to be the result of social or political causes. We can look upon "A" as a young country where many new projects are being constantly started, and consequently, where the demand for labor is greater than the supply. In "A" we may imagine that wheat and agricultural products are one dollar per bushel. In the second country, in spite of the lower rate of wages, on account of the poorer quality or limited quantity and therefore higher price of the land, the price of wheat is one dollar and ten cents per bushel.*

* The land actually planted in wheat or other agricultural products in the country where the wages are comparatively low, need not necessarily be poorer in order to make the price higher than in the country where the money rate of wages is high. The wages in the United States, for example, are higher than in England, although the

If trade is unrestricted, the industries of country "A" will be mainly agricultural. Breadstuffs will be exported, and in exchange manufactured products will be imported. Manufacturing in this country will be at a serious disadvantage, for the same work is performed for twenty-five cents less in country "B." A protective policy is adopted, a duty of thirty per cent. being laid on all cloths. It soon becomes cheaper to manufacture than to import. Clothes will now be made at home. Many laborers will leave agriculture and drift toward manufacturing pursuits. The production of food will fall off by the amount of agricultural commodities formerly exported; for those who formerly labored to produce the agricultural commodities desired by the foreign nation, in order to pay for the imported manufactured articles, will themselves be employed in manufacturing those articles. If now money wages remain the same, and the purchasing power of a dollar is increased, then certainly the tariff is beneficial. By the purchasing power of a dollar I mean its power to buy the things we want in the relative proportion in which we desire them. The price of silk, for instance, has no effect on the purchasing power of a dollar to the day laborer. In order to see whether a certain course is beneficial, we must not only know its effect upon prices, but also the ways in which persons of average means spend their money. The way in which the American living on less than one thousand dollars per year spends his income is as follows:*

average yield of wheat per acre in the counties of England is from 24 to 28 bushels; while in our States it is only from 12 to 16 bushels. The price of wheat is higher in London, however, than in New York, because England cannot raise all the wheat she demands, and therefore must import from us and from other countries.

* Wright, Comparative Wages and Prices. The Sixteenth Annual Report of the Massachusetts Bureau of Statistics and Labor.

Subsistence	51.76	per cent.
Clothing	12.32	"
Rent	16.20	"
Fuel	5.10	"
Sundries	15.57	"
	100.00	

Taking these figures for country "A" and assuming that the duty raises the cost of clothing 30 per cent., then the tariff has increased the cost of living 30 per cent. of 12.32 per cent. or 4.896 per cent. But the same laborers spend 51.76 per cent. of their income for food. The tariff, however, has decreased the demand for the agricultural products, formerly exported. If the country has previously passed the point of diminishing returns for these products, the poorest lands utilized for their cultivation after the adoption of the protective policy, will be much better than the poorest land formerly used for their production. As before stated, the poorest land in "A" used for the production of agricultural commodities regulates their selling price. Therefore the extent of the reduction in the cost of food in country "A," owing to the duty on manufactured articles, will depend upon the difference between the poorest lands used for the production of the agricultural commodities exported while the free-trade policy continued, and the poorest land used for the production of the same commodities after the adoption of the policy of protection. The physical conditions of the country may be such that there is no difference. Then, as far as our argument has gone, there would be no compensation for the increase in the cost of manufactured articles. But can we say *a priori* that the physical conditions of any country are necessarily such that the result will not be a great fall in the price of agricultural products? If meat, bread, etc., fall ten per cent., the cost of living would be reduced 5.17 per cent. Then in spite

of the increase of 30 per cent. in clothing, a dollar will buy more than before the adoption of the protective policy. By supposing an alteration in the conditions, we can increase or diminish the benefits of protection.

I do not claim that the foregoing illustration proves that protection to manufactured articles is a good thing for all countries at all times, or that protection is the proper policy for the United States. But I do contend that it shows we cannot say with the free-trader, "Protection is always and necessarily bad." The advisability of impost duties depends upon circumstances. The foregoing idea might be formulated somewhat as follows:

Prop. 1, A. *Under certain circumstances a system of protection to a large class of manufactured commodities, by decreasing the number of agricultural laborers, raising the margin of cultivation, and reducing the cost of agricultural produce, will increase the purchasing power of a dollar.*

This argument, which supports, under certain circumstances, a general system of protection to manufactures, can also be used to show the evil, under similar conditions, of a general system of protection to agricultural products. To force a portion of the population into manufactories, will not raise the cost of manufactured commodities, and may greatly diminish the cost of food. But if the point of diminishing returns for many agricultural products has already been passed, to drive numbers from manufacturing into agriculture, by placing duties on all farm products, will certainly fail to reduce the price of manufactured articles, and will greatly increase the cost of food and raw material. Thus, Prop. 1, A, when applied to agriculture will read:

Prop. 1, B. *Under certain circumstances, a general system of protection to agricultural produce, by decreasing the number of laborers in the manufactories, may lower*

the margin of cultivation, and thereby increase the cost of food and raw material, while the cost of manufactured commodities will not be reduced.

The "circumstances" which will make a general protection to manufactured articles result in an increase of the productive power of a nation, and the purchasing power of a dollar, are not confined to cases where the nation has passed the point of diminishing returns for nearly all the products of agriculture. In fact, if a nation must wait until the points of diminishing returns have been passed for nearly all the possible products of the land, before laying duties on manufactured articles, a protective policy will never be adopted. It is rather the wrong use of land, than the excess of agricultural labor, that is prevented by a judicious tariff. The high price that foreign nations are willing to pay for some one product, causes it to be cultivated to the exclusion of others better adapted to a large portion of the soil. We doubt if there is a country in the world where one can say there are too many agricultural laborers; but if we had free-trade in the United States, there probably would be too many farmers producing wheat. Generally the reduction of the number of workers in agriculture is beneficial, only because the reduction takes place along those lines where foreign demand will cause excessive production.

Prop. 1, B, deals with a general tariff on agricultural products. Such a tariff would be unwise, as the old corn laws of England abundantly testify. But, under some conditions, the same argument might be used to defend protection to a single agricultural commodity. Take a country which exports one agricultural product, such as corn, to pay a large part of her international debt. Suppose that the point of diminishing returns for corn has been passed, but in spite of this fact, the country can sell corn much cheaper than its foreign

rival. The foreign country, however, can produce potatoes at so low a cost, on account of its social conditions, or because of the peculiar adaptability of the land to potatoes, that it is impossible to raise them profitably in the corn-growing country. The point of diminishing returns for potatoes in the home country has not been reached, for there are practically no potatoes grown. The only reason why potatoes are not raised, is because they can be produced more cheaply in the foreign country. A prohibitory duty is now placed on potatoes. If this drives persons out of manufacturing into potato raising, a loss will result. But, as it has stopped the importation of potatoes, the foreign demand for the country's products will tend to decline in proportion to the amount of potatoes formerly imported. As corn is the principal export, some corn lands will be thrown out of cultivation, and many persons formerly engaged in raising corn will find it more profitable to raise less corn and more potatoes. Good potato lands which were formerly considered worthless will be taken into cultivation.

To illustrate the result of a tariff on potatoes in a country where the conditions mentioned exist. Suppose a certain farmer made a profit of four dollars an acre from his land when he planted corn, and three dollars from the same land when used for potatoes. He will naturally plant corn as often as possible, probably soon exhausting the soil. The government by a tariff increases the price of potatoes, so that the profit on potatoes is four dollars an acre. No more potatoes being imported, the demand for corn falls, and our farmer, we may suppose, only makes three dollars and seventy-five cents growing that cereal. The rise in the price of potatoes, and the fall in that of corn, both operate to increase the acreage devoted to potatoes at the expense of the acreage devoted to corn. Taking the country as a

whole, there is less corn grown, but more potatoes. The worst corn lands formerly producing corn are no longer utilized for that purpose. From the standpoint of consumption, therefore, potatoes are higher, but corn is lower. As in our former case, whether the purchasing power of a dollar has been increased—in other words, whether the advance in the price of one of the articles of our consumption is compensated for by the fall in the price of another—depends, not only on the differences in prices, but on the way in which we spend our income. If corn fell ten per cent. and potatoes rose twenty per cent., but three times as much was spent on corn as on potatoes, we would be better off than before the tariff.

In the following proposition I have tried to formulate the ideas above discussed:

Prop. 1, C. *Under certain circumstances a duty on an agricultural commodity, for which the point of diminishing returns has not been reached, by diminishing the area devoted to a product which has been cultivated beyond the point of diminishing returns, and thus reducing the cost of such a product, may increase the purchasing power of a dollar.*

The "certain circumstances" mentioned in this proposition, exist when the country under investigation is a large exporter of an agricultural product, such as corn, for which the point of diminishing returns has been more than passed.

There are other circumstances, however, in which a tariff on an agricultural commodity may increase the purchasing power of a dollar. One of the elements of the prosperity of a country is the efficiency of the laborer. Efficiency cannot be measured solely by intelligence, but intelligence is always a factor, and in many cases the most important factor. A worker who spends his time fastening the heel of a boot on the sole can be almost, if not quite, as efficient with a moderate as with

a high order of intelligence. But the ignorant farmer is, as a rule, the wasteful, slovenly, and expensive farmer. Such a man produces scarcely enough to supply his own imperative needs, and will save little or no capital. Thus a country will never be as wealthy as its natural resources would lead us to expect, if it has an ignorant farming population. But the intelligent workman and higher type of man requires more wages than his less intelligent competitor. The American can work harder and produce more than the Hungarian, yet the latter, because he demands a low rate of wages, is often the cheaper man for the employer of labor to engage. Suppose we have a country in which dairy products, such as butter, cheese, milk, etc., are not produced, owing to the low price at which they can be imported from other countries. We can also suppose that there are, as in every country, farmers of many different grades of intelligence. What we want to do, however, is to discover the prevailing type of farmer, or the man who is going to survive in the race of competition. Let us take two classes of men: one contented with an income of $300, the other, more intelligent and efficient, but requiring at least $400 per annum to supply him with what he considers the necessaries of life. We will also suppose that the higher type of farmer, by working the equivalent of one hundred days of twelve hours each, can produce. 1200 bushels of corn, while the lower type, working the same length of time, can only produce, on account of his inferior efficiency, 1000 bushels. Though only the equivalent of one hundred days of work is spent in raising corn or other cereals, the farmer is debarred from carrying on any other than agricultural industries. He cannot work in a mill half the year and on the farm the other half. Neither can he greatly increase his production of corn or wheat, for the planting and reaping of

any crop must each be accomplished within the space of a fortnight. Under these conditions the lower and less efficient laborer will represent the prevailing type of farmer. By selling the 1000 bushels at 30 cents per bushel, he will yet receive $300, or sufficient to enable him to live according to his standard. But the higher type of man, who is forced to sell his product at the same price, only receives $360 for his 1200 bushels, which is $40 less than is sufficient to enable him to supply himself with what are to him the necessaries of life. Under these conditions our higher type of man will tend to drift toward the cities, where he will possibly have to work harder, but where he can obtain sufficient to support him in the way which he looks upon as necessary to a happy existence. Consequently, the agriculture production of the country will be conducted by lower types of men, who are less efficient producers.

Under such conditions suppose a duty is placed on dairy products, and as a result the intelligent farmer can spend the equivalent of fifty days' work out of every year attending to cattle; while he receives for his veal, milk and cheese, $160 per year. As a result, the relative position of the two grades of farmers is now changed. The more efficient farmer gains $160 from his cattle, and in order to make $400 per year, he will only have to gain $240 from his corn. He can therefore afford to sell the corn at twenty cents per bushel. But twenty cents a bushel for corn will only bring the lower grade of farmer $200 per year, and he either must make $100 more from the sale of dairy products, or he will be driven out of agriculture. By "driven out," I mean that he will be unable to put himself in a position to support a family and perpetuate his kind. Even if he has enough energy to attempt raising cows, as the intelligent farmer only made one hundred and sixty dollars from the sale of his butter, cheese, etc., it is very ques-

tionable whether with the expenditure of fifty days' labor the inferior farmer can raise dairy products to the value of one hundred dollars. Intelligence is a much more important factor in some agricultural pursuits than in others. We have supposed that in the growing of corn our more intelligent farmer could raise 1200 bushels while his less intelligent competitor raised 1000 bushels, or a ratio of 12 to 10. In the raising of cattle superior intelligence would give a much greater advantage, and we may readily suppose that the ratio would be 16 to 9.

Thus after the duty is placed on dairy products, the advantage is on the side of the higher type of farmer. This is the "survival of the fittest" in its best sense. We may also have a distinct gain to the consumer. Dairy products are higher, but corn is lower. As in our former illustrations, we have the gain to the country depending, not only on the alterations in prices, but on the relation of the amount of cheese, milk, butter, etc., to the amount of corn, potatoes and wheat consumed. If as a result of the tariff dairy products rose twenty-five per cent., and all the cereals fell fifteen, but the consumption of the former was only one-half that of the latter, there would be a net gain of 2½ cents on every dollar spent for food.

It may here be asked: If we lessen a tendency for intelligent farmers to seek commercial pursuits, will not we increase the nation's productive capacity in one direction while decreasing it in another? I think not. Intelligence in commercial pursuits will always give the possessor a great advantage. If the two classes we have chosen for our illustration had a relative efficiency in the production of cereals of 12 to 10, and in cattle of 16 to 9, in trade and commerce, intelligence being a still more important factor, the efficiency of the same classes might stand in the ratio of 2 to 1. The trade and commerce of any country will therefore always be conducted

by an intelligent class. But what we need is to have efficient producers not only in one but in all industries. That nation will be the most progressive where it is impossible for the ignorant, the lazy, and the slovenly to succeed in any occupation, and consequently where all economic forces tend to eliminate the lower and develop the higher type of man.

In the foregoing I have endeavored to show a third class of exceptions to the universality of the doctrine that the cheapness of any particular commodity is always beneficial. The idea may be expressed somewhat as follows:

Prop. 1, D. *Under certain circumstances a tariff on a class of agricultural commodities in which intelligence is an important factor, increasing its selling price, will give a new industry to intelligent farmers, thereby enabling them to maintain their standard of life, without passing to other occupations, while at the same time placing them in a position where they will be able to undersell their less intelligent competitors in other agricultural commodities, and thus increase to the consumer the purchasing power of a dollar.*

Let us now pass to a qualification of the maxim "cheapness is always desirable," which is of a somewhat different character from those already treated.

The advocates of unrestricted trade frequently state, "The object of production is consumption." "Men produce," they say, "to satisfy their desires. Anything which renders such satisfaction easier is a good." Now all this is perfectly true, but it is liable to lead us, as it has led many able advocates of free-trade, into great error, unless we understand the nature of the desires, and can distinguish between individual and national interests. The satisfaction of one desire may be incompatible with the satisfaction of other and more important desires. I will try to show this by a specific illustration.

Let us take the desire for tobacco and the desire for corn. For simplicity we will suppose that the pleasure to be derived from both products is shared by the entire population. We may divide the lands actually employed in raising tobacco, when tobacco is seven cents a pound, into ten different kinds. Suppose the productivity of each, after a unit amount of labor has been expended, can be represented by 780, 760, 740 . . . 600 pounds per acre. The cost of raising tobacco on the poorest tobacco lands is equal, as was formerly explained, to the selling price. We can suppose that the owners of the best tobacco fields could sell their product at 3.846 cents per pound. As their lands, however, do not produce all the tobacco demanded at this price, other and poorer tobacco lands have been devoted to the cultivation of the plant. The price for tobacco has risen, until what we may suppose is the present average rate of five cents per pound has been reached. At this point the demand and supply are equal. The money rent of any tobacco land is equal to the number of pounds it is capable of growing above the number which, for the same amount of work, may be grown on the worst tobacco lands under cultivation, multiplied by the price of tobacco per pound. Thus the tobacco rent for the first land being one hundred and eighty pounds, and the price of tobacco being five cents per pound, the money rent for the best tobacco land will be $9.00 per acre. The land utilized for tobacco, however, is suitable for other crops. The reason the farmer does not grow potatoes and corn, is because tobacco pays better. The moment he finds it more profitable to raise something else, he will do so.

Let us now turn to the demand for corn. The selling price we will suppose is forty cents per bushel. The demand for corn at that price causes certain lands to be turned into corn-fields. All those lands which produce

corn at less than forty cents per bushel, can occasionally be planted with corn. We can divide the lands which are capable of raising corn at forty cents or less into ten kinds. On the best corn land for a given amount of work, which is of course much less than the labor required to cultivate a tobacco field, 36 bushels will be produced; on the next 34 bushels; on the next 32 bushels; and so on, until the tenth only produces 18 bushels. The cost of this last land, which is on the present margin of cultivation for corn, being equal to the selling price, or forty cents per bushel, the rent of any corn land will be, as in the case of the tobacco lands, the difference in the number of bushels of corn produced on that land and the number produced on the worst land under cultivation, multiplied by the price per bushel. Thus the rent for the best corn land will be $7.20, for the next best $6.40. On land which can raise corn at less than forty cents per bushel, a profit can be made by growing corn. Whether a farmer who owns such land will grow corn or tobacco, depends upon which is the more profitable to him. If he has land which is the fourth-grade tobacco land, and at the same time the third-grade corn land, he will grow tobacco. In corn his profit is only $5.60 per acre, while in tobacco it will be $6.00.

The government now taxes tobacco fourteen cents per pound. As a consequence the amount of the demand falls. The poorest tobacco lands are no longer planted in tobacco. The margin of cultivation for tobacco rising, the cost of production is not so great as before. There is a general readjustment of prices. We may suppose that the demand and supply for tobacco come to an equilibrum, when the farmer's selling price is 18.158 cents per pound; 4.158 cents representing the cost of production on the poorest land and 14 cents representing the tax. The worst tobacco lands, those

that produce only 600, 620 and 640 pounds of tobacco respectively, can no longer be utilized for tobacco. The margin of cultivation for tobacco rising from land which will produce 600 pounds per acre to land which will produce 720 pounds per acre, the rent for all other tobacco land falls; for, as explained, the rent of land at any time is the difference between the number of pounds of tobacco which it will produce and the number of pounds of tobacco which the poorest land in use at that time will produce, multiplied by the price per pound received by the farmer. For instance, the fourth-grade tobacco land is now on the margin of cultivation for tobacco. The tobacco rent for this land falls to nothing. The rent of the best tobacco lands, estimated by their value when utilized for producing tobacco, falls from $9.00 to $3.00. A farmer who worked on lands not capable of producing more than 720 pounds of tobacco, will now raise corn or other agricultural products.

But the tax will not only throw tobacco out of cultivation on the worst grades of tobacco lands, but it will also greatly reduce the quantity grown on lands which might still raise tobacco at a profit. Take the case of land which is in the fourth grade for tobacco, and at the same time in the third grade for corn. Before the tax tobacco would have been raised, because the profits for tobacco and corn stand as $6.00 to $5.60 per acre. But afterwards corn will be more profitable, the returns then standing, corn $5.60, tobacco nothing.

In this way a great deal of land formerly planted with tobacco will be utilized to cultivate corn, or other agricultural products. As a consequence the worst corn, wheat or potato lands will be thrown out of cultivation; for the demand for these products has not increased while the extent of the acreage open to their cultiva-

tion has been greatly enlarged.* All this will effect a reduction in the price of corn and similar commodities. Thus, the tax on tobacco not only alters the value of tobacco lands, but of corn and wheat lands as well. In opening new fields for other agricultural products, the tax may diminish the cost of all agricultural production; not because taxation makes land more fertile, but because in this case it raises the margin of cultivation. In so far as any one is a consumer of tobacco, he will be injured by the tax; but if the whole people can obtain bread, meat, potatoes, and other necessaries of life at a reduced cost, will any claim that the country is not benefited? When we speak about production being solely for the purpose of satisfying the desires of man, we must remember that a desire, even if it is shared by all the population, may not be in harmony with national progress.

This example shows how intimate is the connection between the price of one agricultural product and another, and proves that it is impossible to gain a knowledge of economic laws by simply examining the production of one commodity. Here is the error of the old political economist. He considered his work accomplished when he indicated how one desire of man taken by itself could be gratified, forgetting that some desires may be mutually destructive. The proposition that a tax on one commodity may, under certain circumstances, increase the productive power of the community, is even to-day looked upon by many as absurd. Yet in our illustration we have shown condi-

*A specific example may be found in our own country. Many tobacco fields in Kentucky could be made better corn fields than many soils in other and colder States, which are now utilized for growing corn. If the profit from raising tobacco should from any cause decline, these fields, now planted in tobacco, might be planted in corn, and much land on which corn is now raised at greater expense would be used for other and more suitable purposes.

tions where a tax on one commodity does increase the productive power of the nation. It is simply applying to man a well-known principle, now recognized by scientists, but persistently ignored by many economists. A great increase in one species of animals reduces the numbers of another which lives on similar food. The seals of Alaska and the otters which haunt the rivers running into the ocean, both feed on the salmon. An increase in the number of seals will be accompanied by a decrease in the number of otters.* Two species consuming the same kind of food can seldom exist in the same district. The brown rat of Turkey on his migration to Europe, rendered it impossible for the native black rat, who lived on the same kind of food, to find the sustenance necessary for his existence. Consequently the black rat is practically extinct. In the same way two agricultural products, utilizing soils of the same character, are seldom cultivated in the same country. Production will be confined to products for which the people have the strongest desire. Again, if man extinguished all other animals in order to have more room to raise buffaloes, because people were willing to pay an enormous price for the meat and hide of that animal, there would still only be a limited number of buffaloes on the earth, for there is only a limited amount of food suitable for their consumption. There could not be enough buffalo meat raised to supply the present population of the earth. By diversifying the species a far greater number of animals can exist. The same is true of agriculture. If we all tried to live on one product, only lands suitable for its cultivation could be used. The greatest production will result in diversity. Taxing one commodity to

*These illustrations are taken from Wallace's *Darwinism*, where the reader will also find the elementary principles of the struggle for existence here referred to popularly explained.

cheapen another, may be ridiculed by the thoughtless; yet, if we wish to cheapen song-birds in the United States, would we not use every means in our power to decrease the number of sparrows? And if taxation lessens the demand for an article, may it not reduce its production, and open new fields for the cultivation of the commodity we desire to cheapen; just as the gun which destroys the sparrow will indirectly leave more food to the species we desire to introduce?

The illustration of taxing tobacco to cheapen corn is in many respects similar to our demonstration of Proposition 1, C. In one case we make the raising of potatoes profitable, and increase their production at the expense of corn; in the other the production of tobacco is decreased, giving a larger acreage for the necessaries of life. They both depend upon the same general principle; the greater productive power resulting from a closer adjustment to physical conditions. A passive national policy favors the unrestrained gratification of one desire at the expense of all others, and allows the excessive cultivation of some one commodity to exhaust the soil, causing one crop to be raised in places where others should be cultivated. All this increases the rent which goes to the landlord, and lowers the purchasing power of a dollar to all classes of society. It is this confusion between the satisfaction of a present particular desire, and the good of the people, which has given so much strength to the creed of free-trade among the masses. For instance, no formula appeals more strongly to the average man, than the oft-quoted assertion, "We have no right to tax the many for the benefit of the few." Certainly we have no right to tax the nation for the benefit of a class. But we should remember that the proposition can be inverted. If we have no right to tax the many for the benefit of a class, neither have we the right to refrain from taxing them

for a similar object. If a tax on tobacco will benefit the country by increasing our productive power, to refuse to tax it would be sacrificing the best interests of the country for the benefit of a single industry. Again, if we have no right to sacrifice the good of the nation for the benefit of a portion of the community, neither should we ever permit the satisfaction of any one desire, though shared by all the people, to impede national progress. The desire for a commodity may be very strong, but if its gratification leads to poverty and want, or even retards the growth of higher wants, to weaken or eliminate this desire will certainly be an act of far-seeing statesmanship.

We must bear in mind that there are two ways in which the productive power of a people can be increased. The first, and the one on which the greatest stress has heretofore been laid, is by rendering the methods of producing the things we now desire easier, as by inventions, discoveries, etc. The second, and by far the more important method, lies in changing the desires of the people—making their wants more in harmony with their surroundings.

Take a people with a strong desire for butter, made from the milk of a cow. Inventions to aid churning will certainly increase the productive power of the community. But suppose the people could be induced to use in the place of the cheaper grades of cow's butter, some substitute, as oleomargarine, which could be easily and even more cheaply produced. The benefit to be derived from this change in desire, will be much more substantial than any possible invention in making butter.

To take another illustration. Imagine a country where if 10,000,000 pounds of rice were produced, the selling price would be three cents per pound. At the same time wheat is grown with difficulty. The people

being largely immigrants, or the descendants of immigrants, from good wheat countries, eat little rice, but demand wheat in large quantities. Their present condition, however, requires that wheat should be imported from other countries. If they ate more rice and less wheat they would sustain life, which is the object of consuming food, as well as they do now, and with much less effort. Suppose the government lays an import duty on wheat, causing it to rise in price. The difference between the cost of wheat and rice is still further increased, with the result that more rice is consumed and less wheat. At the same time rice being cheap in comparison with bread, the total amount spent on food may be reduced, although the people do not eat as much of that particular kind which their ancestors, living under different circumstances, were led to desire. Soon however the people will become accustomed to their new diet. On the removal of the duty they will not be apt to return to their old excessive consumption of wheat. Custom made their ancestors fond of wheat, and the custom of eating less wheat and more rice will again regulate the desires of their descendants. By the duty the productive power of the people has been increased. It has forced them into closer adjustment with their surroundings, and placed them in a position to feed themselves with less effort.

Taxation is usually a burden on the consumption of the commodity taxed. To prove that it is a benefit to the community, we must find some compensation in that it increases the productive power of the nation, either by making it easier for us to gratify our present desires taken as a whole, or forcing our desires themselves into greater conformity with our environment. Propositions 1, A and 1, C dealt with the increase of the purchasing power of a dollar, spent in the ways we

now spend our income, resulting from a tax on manufactured imports or certain agricultural commodities. The last discussion shows that protective duties may be used to unconsciously bend our desires into their proper channels, *i. e.* more clearly in accordance with our conditions.

The principle on which this last protection rests may be expressed as follows:

Prop. 2. *Under certain circumstances an impost duty on one commodity, enhancing its price, will lower the cost of living, by increasing the consumption of other commodities which serve the same ends, and can be produced by a smaller expenditure of labor than was required to produce the products exchanged for the taxed commodity.*

The foregoing is a defence of protection as a permanent policy, based on the exceptions to the "cheaper the better" theory of free-trade. By permanent protection I do not mean protection which must last forever; but rather protection which is held to be wise because of certain economic conditions. Wherever these conditions are found, a policy of protection is the proper one for that country to adopt; but if the conditions should cease to exist, protection would cease to be expedient. On the other hand, what I mean by temporary protection, in distinction from the above, is protection which is expedient owing to some special cause, which cause the mere operation of the duty tends to remove. Like permanent protection, temporary protection is under certain circumstances an advantage.

When, for instance, we have a reasonable hope that we will soon be able to produce the commodity at home with less effort than is now required to produce the articles exported to pay for the product one proposes to protect, no one will doubt the expediency of a duty, if it increases the prospects of a speedy establishment of

the industry. It is easy to demonstrate that protection has the effect of stimulating an industry not heretofore established. An old and well grounded industry will be carried on when the profits are very small; but in order to induce persons to make industrial experiments, high profits must be practically insured. The introduction of a breed of stock, the establishment of a certain manufacturing industry, may be retarded for years, not because it would not be profitable if once established, but solely because prices are not sufficient to warrant experiments. These remarks are not confined to "*Infant Industries.*" Many industries, long established, may be conducted in antiquated and expensive ways, and prices may not warrant the outlay of labor and capital necessary to introduce the new methods. Temporary stimulation by protection is as necessary in such a case, as if the industry had not advanced beyond an embryo state. The duty should be high enough to insure good profits, and induce many to enter the industry. In time the home production will exceed the home demand at the high prices, and consequently the cost to the consumer will fall to the basis of ordinary profits to the producer. The duty can now be discarded as useless, for under our supposition the industry being firmly established, the cost of production is less than the cost in foreign countries. Thus, our third and last proposition can be stated as follows:

Prop. 3. *Under certain circumstances a duty on a commodity which is now imported, but which could be produced at a lower cost at home if the industry was once firmly established on a proper basis, will insure high enough profits to induce many persons to enter the industry, who by their competition with each other will reduce the selling price of the commodity below the price at which it was formerly imported, and thus increase the purchasing power of a dollar.*

I have attempted to indicate the lines on which I believe a tariff on raw wool, or other protective tariff, must be defended. The advocates of protection must prove one of four things:

Either that as a consequence of the tariff on wool, the present desires of the people are more easily attained, on account of a reduction in the cost of other agricultural products, owing to the margin for their cultivation being raised.

Or: That the same result is accomplished because of the increase in the efficiency of the agricultural population.

Or: That the desires of the people of our country are brought into greater conformity with their surroundings.

Or: That the sheep industry only needs stimulation to put us in a position where we will be able to produce wool and mutton as cheaply as any country in the world.

The object of protection is to increase the productive power of the people; in other words, to enable them to buy more commodities—to satisfy their wants more easily than they did before. I have shown that under given conditions a duty will increase the purchasing power of a dollar. It will be observed that the foundation of the protectionist's argument is similar to that of the free-trader. Each attempts to show that the practical adoption of his ideas will increase the incomes of the people, by enabling them to buy more. The difference in their conclusions is due to differences in the way they look at society and the production of wealth. The free-trader examines separately each industry. He sees that the prices of protected commodities are apt to rise, and then jumps to the conclusion that protection is bad. The protectionist examines more closely the nature of production as it actually is, and the relation of the production of one commodity to that of another. He also looks at the effect which demand has on price, and is

forced to the conclusion that protection under certain circumstances is beneficial, because, while it may not enable us to obtain the commodity protected at a reduced cost, it nevertheless reduces the cost at which other commodities can be produced.

We have shown five distinct ways in which a tariff may be beneficial to a country. There is no reason, however, why they may not all operate at one time. A duty which enables the people to satisfy their present desires with less effort than before, may likewise tend to make them live more in harmony with their environment, and also ultimately establish the protected industry so firmly that their products will undersell those of their foreign rivals.

CHAPTER II.

WHEAT AND CLOTHES: OR THE CAUSE OF AGRICULTURAL DEPRESSION, AND ITS REMEDY.

BEFORE we enter upon a specific description of the wool industry, there are a few facts concerning the present condition of agriculture which we should consider. There has existed throughout the world, and especially in our own country, a marked depression in agricultural industries. Farmers complain that the prices they receive for their corn and wheat do not repay the labor of cultivation. The effect of this condition is plainly shown in the character of the population settling Oklahoma. The majority are persons who have left comfortable homes in the Central States. The tilling of any but virgin soil has ceased to be remunerative. It is not that the land in the old States is any less productive, though in these States for some products we do observe a slight decrease in the return per acre. The cause of the depression lies in the fact that prices have declined, and a steady market for the staple crops is a thing of the past.

Some light will be thrown on the cause of this depression, and its remedy, if we examine a section where the condition of agricultural interests is especially unfavorable. Let us take the belt of country lying immediately north of the Ohio River, in the States of Ohio, Indiana and Illinois. The average yield of wheat per acre in these States is 11.7, 13.9 and 13.7 respectively.* If we take the southern section in the first two states, we will only find two counties, Hamilton

* 1888.

in Ohio and Pusey in Indiana, which have an average yield for wheat higher than the average for the State. Indeed, the returns from the majority of the southern counties show that their average yield is only ten bushels to an acre, while some, as Scott county in Indiana, will run as low as eight bushels. The average yield of wheat for the southern counties of Illinois is also considerably below the yield of the counties in the central and northern sections of the State. At the same time we find that since 1870 the number of acres devoted to the cultivation of wheat in the belt of country under discussion has increased by one, two, three, and even four hundred per cent., though it is true that the greater part of this increase took place in the decade ending with 1880. Since 1870 the average return per acre has either remained stationary or slightly fallen off. In no case, we understand, is the average acreage for a county in the southern section of any of these States higher in the last five years than the average for the five years ending with 1870.

Simultaneously with the slight decrease in the return per acre, there has been a considerable fall in prices. This decline in values has not been continuous; but if we take the period since 1868 we see that not only has the value of a bushel of wheat greatly diminished, but the value of a bushel of corn has likewise declined. The total fall in wheat has been between 40 and 55 per cent. Part of the fall in prices is compensated for by the fall in the rates of transportation. Thus in 1870 the average rate for transporting a bushel of wheat from Chicago to New York was 28½ cents; in 1889 the rate was 13 cents, or a difference of 15½ cents. But during the same period the average price of wheat in New York fell from $1.65 to 86 cents per bushel, a fall of 79 cents; making a net loss in the return of 63½ cents. The net loss in the return for a

bushel of corn is about 20 cents. Thus we observe on the one hand a slight decrease in the average yield per acre for the two great staple crops, which indicates a slight increase in the cost of production; while on the other hand we observe a great decrease in the price per bushel.

The main reason for this unnatural and thoroughly unhealthy state is to be found in the tendency to the over-production of such crops as corn and wheat in all countries where new land is constantly being opened for settlement and brought under cultivation.

The farmer in any thoroughly settled portion of the country, such as Illinois, usually has several sources of income from a variety of crops, and is seldom exclusively devoted to the production of one commodity. But in newly settled Territories, it is different. Land being cheap and labor dear, the tendency is to raise large quantities of some one crop. For this reason the northwest has become a great wheat region, the cultivation of that cereal having increased with marvelous rapidity. Thus in Dakota in 1870, only 181,284 bushels were raised. In 1888, however, there were 38,036,000 bushels. The same increase is seen in Montana. In 1870 the Territory was practically a wilderness. In 1880 only 468,688 bushels were produced, but in 1888 the crop amounted to 2,001,000 bushels. While there exists in every country a tendency to increase the production of the staple crops with each new section opened for settlement, the comparative ease with which railroads can be laid on the prairies, and the facility with which land devoid of timber can be brought under cultivation, make this tendency very marked in the United States. At the same time there seldom has been, and is not now, a corresponding increase in the demand for these crops. Consequently the prices of staple commodities fell at the commencement of the period of railroad construction in

1869; not because of the decrease in the cost of their cultivation, but because of their over-production.

A reduction in earning capacity such as the decline in prices implies, falls with greater severity on the farmer than on any other class of society. In our country he belongs to the debtor class, paying out in fixed charges a large proportion of his income. The laborer can reduce his personal expenses, but the farmer's taxes and the interest on his mortgage are the same in bad as in good seasons. The rise and fall in the price of the commodities he produces have no effect on the amount of his mortgage. Thus it is more important that he should have a steady market for his products, than that he should pay the lowest possible price for his clothes. What the farmer wants is the ability to earn a living.

There are two possible remedies for the over-production of the staple crops. We can open our ports freely to the products of foreign mills, and try to increase the foreign demand for wheat and corn. Such a course would stop the wholesome tendency to diversify our industries, close large numbers of our factories, and throw thousands of hands out of employment. It might even compel the mechanic to go west and try to produce wheat and corn, thus increasing instead of diminishing our present difficulties. The other remedy strikes directly at the cause of the evil, without disturbing the present system of encouraging the home production of manufactured articles. If with every fall in the price of corn or wheat, the farmer of our older States could decrease his production of those commodities, and increase the acreage devoted to some other crop, or breed more stock, the demand and supply of the staple products, in spite of the constant development of new territory, would always have a tendency to return to their normal condition. As long as a nation has undeveloped

territory continually being opened for settlement, she should constantly aid the farmer in the old districts to counteract the depressing effect of a fall in the price of staple products, by aiding in the development of new agricultural industries. As a matter of fact, our governnment, until recently, has done little in this direction. From this inaction spring the farmer's present difficulties. The raising of horses, pigs, and to a certain extent dairy products, are industries fully developed, and only capable of a normal increase from year to year. The demand for the products of these industries was, and still is satisfied, but the opening of new territory, and the consequent tendency to the over-production of the staple crops continues. To relieve the depression consequent on the fall in prices, our farmer, as was shown in the case of the region along the Ohio, has attempted to do exactly what he should not have done. He has either tried to keep up his income by increasing the average acreage devoted to wheat or corn, thereby still further depreciating the value of those commodities, or, hoping for an improvement in prices, he has continued to plant his corn and wheat fields at a loss, meeting the year's expenses by increasing the mortgage on his land.

We have selected a particular portion of the country, not because it was the only part, unfortunately, where the condition of agriculture is unfavorable, but because it is sufficiently far west to show that agricultural depression is not confined simply to those sections of our country where the most energetic members of the community have for generations either migrated to the edge of civilization, or removed to the large cities. The agricultural interests in many Eastern States seem to be passing through a period of stagnation or decline, and the steady depopulation of whole counties is shown by the change from small to large farms. The crying need

of our farming population is the establishment of new agricultural industries. It is especially important to have in those districts where the yield per acre of wheat or corn is small, an industry which will utilize the poorest land now devoted to either of these cereals, and also bring into use other lands at present lying waste.

Of course if this decline in value of agricultural commodities, which is the cause of the depression existing in large districts in the East, and a great deal of suffering in the West, was itself caused by any permanent inferiority of the natural resources of the soil, it would be folly to attempt to counteract it. But the depression is not due to permanent causes. The soil in the Middle Atlantic and Central Western States is excellent. To be sure, in the district along the Ohio which we have taken as an example, it is no longer virgin. Montana and Dakota have certain temporary advantages in this respect. But the great fall in the value of the staple commodities is not to be accounted for by any such slight differences in the cost of production. As has been shown, it arises from the fact that the production of certain crops has outrun the demand at the old prices. We should be willing to make no inconsiderable sacrifice to avoid the possibility of our agricultural population being driven to and fro over the country with every temporary change in the value of the staple products. It needs little demonstration to establish that this can only be accomplished by the continually introducing new industries, such as sheep-raising, to which farmers can resort when such products as corn and wheat fail. In the end such a course will increase the productive capacity of our agricultural population, thereby reducing the cost to the consumer of all agricultural products. For the depopulation of any section of the country, the long years of useless effort to over-

come adverse circumstances, and the individual suffering which the struggle entails, together with the amount of capital which is wasted, are heavy blows to the productive forces of any nation. A people who are continually forced to alter their habitation and whose future is uncertain, will rapidly cease to care to accumulate capital, and become indolent and thriftless. The establishment of a new agricultural industry, or the increase of one already established, such as sheep husbandry, will not be beneficial in that it directly reduces the cost of the consumption of wheat or any other agricultural commodities now exported. The benefit from the firm establishment of such an industry will rather spring from the fact that it will prevent the waste of productive force which will inevitably result if our agricultural population has to change its location with every variation caused by the instability of foreign prices, in the value of our staple commodities.

The facts that we have pointed out form an argument in favor of the tariff on raw wool to this extent: They show that our agricultural population needs the establishment of a new industry or the increase of one only partially established. The facts also show that if we do not do this, the present depression of agricultural interests will continue. Thus the extent of the benefit which it is intended to confer upon the country by the tariff on wool is very large. The amount of the sacrifice which the duty involves now demands consideration.

One of the arguments of the opponents of a tariff on raw wool is that it increases the price of clothing, while another asserts that it forces us to use cotton instead of wool. Taken together, the statements are in a sense mutually contradictory. If the tariff on wool tends to lead us to use more cotton in our clothes than we otherwise would, we may dress just as cheaply, though differently than before. Whether we will be dressed as well,

depends upon the relative utility of cotton and wool in clothing. That a duty on one article does increase the consumption of its substitute, is beyond dispute. The Secretary of the Wool Manufacturers' Association estimates that there is now one pound of cotton and shoddy used in so-called woolen goods for every pound of wool. In the Census of 1880 the proportion was one pound of cotton and shoddy to four pounds of wool. On the other hand, I am informed by manufacturers in England that the proportion of wool in woolen goods used by the people of Great Britain during the same period has certainly not diminished, and has probably increased.

Clothes, however, are not the only commodities in which the two fabrics can be used interchangeably. Carpets, furniture, coverings, curtains, blankets, can also be made of wool or cotton. To determine whether it would be a good thing for us Americans to use more cotton than we do, we would have to investigate the relative advantages and cost of the fabrics in the various uses in which they are employed. The data at hand are entirely inadequate for an intelligent investigation of such a complicated problem. The facts, however, concerning clothes, as far as we have them, seem to indicate that the tariff on wool or woolens, through a disadvantage as far as the consumption of woolen cloth is concerned, is not the burden on the cost of living which the advocates of free raw material, or complete freedom of foreign trade, would have us believe. The object of clothing is health and warmth. Roughly speaking, we can obtain cotton at ten cents per pound, and without our present duty, scoured wool at forty cents per pound. Where possible without endangering health, the cheaper fabric ought to be employed. From a hygienic standpoint the proportion of wool which should be used depends upon climate. When pressed into solid blocks the conductivity of the substance of which cotton is

composed is less than that of wool; being .000111 to .000122 (C. C. G. units). Woolen fibre, however, unlike cotton, does not grow in a solid core, but is full of interstices, and therefore contains large quantities of air. Now the conductivity of air is considerably less than that of either cotton or wool. In C. C. G. units it is only .0000558, or one-half that of cotton, and thus from the structure of the fibre, a woolen garment is warmer than one of equal weight made of cotton. This difference is also increased by the way in which it is woven. Loose-woven fabrics allow the air to enter between the fibres, and are therefore warmer in a still atmosphere, while tightly-woven goods are better adapted to strong winds. Wool, on account of its felting properties, as explained in the next chapter, is especially adapted to loose weaving. The colder the climate the larger the proportion of wool which is necessary for our comfort and health.

While the substance of the cotton fibre, apart from its structure, is not as good a conductor of heat as the substance of the wool fibre, wet cotton is an excellent conductor. Consequently in all except very warm climates woolen underclothes are decidedly to be preferred; as the slightest perspiration largely increases the conductivity of the cotton, rendering the wearer liable to sudden chills, after overheating. It is on account of the excellent conductive powers of the cotton when wet that it is generally supposed cotton underclothes do not dry as fast as wool. As a matter of fact, however, woolen clothes hung on a line will not dry as fast as cotton clothes, for the reason that the structure of the woolen fibres, which allows them to contain large quantities of air, also allows them to absorb, when thoroughly soaked, a large quantity of water.

As far as the wearing or lasting properties of woolen and cotton cloths are concerned, there have been no

scientific experiments, but experience seems to show that there is little difference in this respect between the fabrics. But when there is a considerable strain in wearing, the greater elasticity of wool makes woolen cloth more durable than cotton.

This brief outline of the subject is sufficient to indicate that each section of our country should use cotton and wool in a different proportion. In winter, wool should be used in the undergarments, and more or less in the outer garments, of those living north of the Gulf States. The surface of all cloths, and especially of all overcoatings meant to be worn in damp climates, such as the climate of Boston and on the sea-shore generally, should be of wool. In the West, where the air is dryer, less wool is required. On the other hand, in summer we could well afford, in nearly all sections of the U. S., to have our outer garments exclusively of cotton. The important point, however, is that our climatic conditions are essentially our own, not those of other countries. We should not take our fashions in clothing from a people who have a different climate and a different relative cost of cotton and woolen cloth. For of this we may feel assured, that as long as we Americans adopt European fashions, so long will we waste an enormous amount of productive force trying to live according to English, or French, or German, rather than according to our own conditions. Everything which renders us less dependent on foreign models for style and manner of living, is good in so far as it allows the influence of our own surroundings to produce their natural effect.

Whether we should use a larger portion of cotton or wool than we do now, is a question which it is impossible to decide. In one section perhaps we should wear more cotton; in another a greater proportion of wool. But certainly over a large part of our country it would

be unwise for us to wear anything like the proportion of wool which is used in England. That country has a very damp climate, but heavy rains are practically unknown. With us, on the other hand, the atmosphere as a rule is dry, but throughout the year, and especially in summer, we are liable to have heavy rains. In England, therefore, woolen garments are always necessary, and at the same time always form a sufficient protection. Our heavy rains, particularly in the West, make rubber coats essential, while when it is clear, the dryness of the atmosphere, and the extreme heat of summer, render useless the large proportion of wool which is usually found in English clothes. Our climate gives us the advantage of being able to wear clothes containing relatively a larger amount of the cheaper fabric. Yet with the present tendency to follow the fashions of foreigners, we would undoubtedly use almost as large a proportion of wool in our clothing as the Englishman, if wool in relation with cotton was as cheap with us as it is in England. As the tariff undoubtedly has the effect of lessening the demand for woolen clothes below what it otherwise would be, in so far it is beneficial. Thus instead of being a burden on the cost of living, our duty on wool may ultimately enable us to live more cheaply, in that it will induce us to conform to our environment more closely than we do at present.

Whether, as a matter of fact, the tariff on wool is necessary to the increase of the industry, depends upon the actual condition of sheep husbandry. The parts of our country which are favorable to the development of sheep raising, and the consequent extent of the relief to our agricultural population which we may expect from its growth, can likewise only be known after we examine these conditions. To their investigation it is now time to turn our attention.

CHAPTER III.

SHEEP AND WOOL.

In order to appreciate any problem connected with the sheep husbandry of the nation, we must understand the fundamental distinction between the different kinds of sheep. Among thoroughbred sheep there are mutton and fine wool breeds. This is not saying that the sheep which produce fine wool cannot be eaten, but simply that those bearing what is at present considered the most desirable wool, or the finest wool in comparison with those whose fleece is of a coarser grade, are light in frame, are fattened with difficulty, and produce mutton which is coarse-grained and unsavory.

But why is "fine wool" so greatly in demand? Wool is a species of hair. The fibre is composed of cups, superimposed and fitting closely into one another, having a somewhat striking resemblance to a pile of tumblers. At or near the centre is a solid core. If we pass the fibre through the finger, so as to press the edges of the cups toward the core, the surface feels smooth; but if we reverse the movement, the edges of the cups are raised, and give a slight sensation of roughness. The cups are called serrations, the edges causing the fibre to appear serrated under the microscope. In the wool from the finer Australian and Silesian breeds of merinos, the number of serrations will average twenty-five hundred to an inch; in that from the Cotswold and Leicester, eighteen hundred; while frequently less than five hundred can be counted in the coarse Algerian wool. As a rule it may be said that the fineness of the fibre, or its diameter, is directly as the number of serrations.

To this peculiar cup-like structure wool owes much of its usefulness. If the fibres are rubbed together when wet, the edges of the cups become interlocked and entangled. The resulting solid mass is called felt, and the process is known as felting.

Carding is also dependent upon the number of serrations. Ordinarily in dealing with fibres, the first object is to draw all the fibres parallel with each other, and roll them into a sliver or loose skein. Yarn is composed of one or more slivers twisted on the spinning mule. In carding the object is to entangle and entwine the fibres. The resulting sliver, instead of being of parallel fibres to which quite a twist must be given in order to hold them together, is composed of fibres already so interlocked that only a moderate twist is necessary to preserve its shape. What is known as hard spun yarn, is yarn in which the slivers have been twisted to a considerable degree. Woolen yarn, except in making woolen warp, is never "hard spun," though when designed for clothes it is always twisted more than the yarn which enters into hosiery and knit goods. The absence of hard spinning in woolen cloths lends to woolens lightness, combined with bulk and strength.

As the process of carding depends upon the felting qualities of the wool, and the felting qualities depend on the number of serrations, which in their turn indicate the fineness of the fibre, it is only the finer fibres which can be carded. True, the coarse kinds of fibre and hair are passed through the carding engine, but these are always mixed with some wool of good felting properties, in order to preserve the shape of the sliver. In the long coarse wools, the fibres must be drawn parallel; treated, in other words, like cotton. To do this the processes of gilling and combing are employed, and the resulting yarn is called worsted, just as woolen yarn results from the process of carding. Here then we have

the fundamental distinction between the woolens and worsteds. In woolens the fibres are crossed and interlocked; in worsted, like the fibres of plants, they are drawn parallel.

There is just as much theoretic distinction as ever between woolen and worsted yarns. It is the character of wool entering into worsted yarns which has changed. When hand-combs were alone employed, no wool under five inches in staple or length could be combed. In 1840, Heilman invented a machine which, by separating the long wool or tops from the short wool or noils, and at the same time drawing the long fibres parallel, performed by machinery the work of the hand-comber. This device was followed in 1853 by the invention of the Noble, or circular combing machine. The latter was so constructed that it was able to comb wool of comparatively short staple. But the great change in the character of the wool used in worsted did not come until the gradual perfection of the Holden square motion machine, and what is known as the French process of combing. The first patent for the Holden machine was taken out in 1848, and improvements are still being made in its construction. It is now possible to comb with advantage, fibres of three-inch staple, and even fibres from one and a half to two inches in staple can be used. As a result of these inventions, the finer and shorter staple wools are employed in both carding and combing. In fact, though pure merino wool is not generally combed, wool which is cut from a breed known as the Delaine merino, and which is a little over three inches in length, but in which the serrations are somewhat less numerous than in that grown on the pure merino, makes an excellent combing wool. On the other hand, the improvement in carding enables us to card wools of four to five inches in length, though we cannot as yet card long combing wool. The long-wool sheep, who

once had the monopoly of the worsted trade, have thus of late years been almost driven from the market, while as a result of the increased variety of wools which can be spun into worsted yarns, the use of worsted goods has greatly increased. At the same time, though the theoretic distinction between worsted and woolens still exists, practically they are drawing closer and closer together. As far as the raw wool is concerned, there is no difference between that used for carding and that used for combing.

Fine wool is the only kind, except the very coarse carpet wool, for which there is any large and steady demand. The carpet wools, or rather the wool used in carpets, is often so coarse that it cannot be used in woolen and worsted yarns. The fibre frequently approaches more nearly the hair of the goat, than the wool of the sheep. Of course, the backing of cloths can often be partly made of the finer sort of wool found on the surface of the ordinary carpets.

Having considered some of the distinctions between wools, let us look at the different breeds of sheep.

As before intimated, the fine wool sheep are the Merinos. It may be said that they or their crosses are the only breeds bearing fine wool. Yet one hundred and twenty-five years ago, not one of these animals existed outside of the boundaries of Spain, and even as late as the year 1800, Spain exported six million pounds of wool to England alone. The fleece of the Merino often brought as high as sixty-five cents to one dollar and forty cents per pound. The rest of the continent of Europe possessed numerous herds of sheep, carrying more or less coarse and inferior grades of wool. Probably the two most notable exceptions to the general worthlessness of the stock were the Friesland and Rousillon. The first stood over three and a half feet in hight, and were especially prized for the large quantity of milk

yielded by the ewes. The wool bordered on hair. The Rousillon were natives of France. Their fleece, though comparatively thin, was almost as fine as the Merino.

The Merinos of Spain are said not to be indigenous to that country, but to have been imported by the Romans. In fact, an attempt has been made to trace the breed from the country around the ancient port of Dioscurias, on the Black Sea.*

Whatever their origin, the sheep of Spain, in the last century, by fresh importations from Northern Italy and careful breeding, had reached a very high state of perfection. In fact, though we have since more than trebled the weight of the fleece, it is doubtful whether we have improved its quality.

Two reasons had up to 1765 kept the Merinos within the boundaries of the kingdom of Spain. The government zealously guarded what was rightly believed to be the nation's richest possession and most profitable monoply. Strict laws were made forbidding the exportation of the Merino. The more celebrated varieties, the Escurial, Gualeloupe, Paular, Infantado, Montareo, and lastly but not least, the far-famed Negretti, were especially protected. There was also a firm conviction

* The reasons given for this view are interesting. Tzetes mentions the fame of the wool grown by the Coraxi, as spoken of by Hipponax, who lived about 540 B. C. This port is supposed to have had trade with Miletus. It could, therefore, have readily supplied to that island those sheep whose fleeces ranked first in the ancient world. The Greeks are thought to have introduced the sheep of Miletus into Southern Italy, for in the time of Pliny we find the wool of Tarentum in the highest repute. The writer at the same time calls them Greek sheep, and mentions that they have a short fine staple. According to Palladius, they were called Asiatic sheep; meaning by Asia, Miletus and the adjoining ports of Asia Minor. Their fame is also spoken of by Horace and Martial. The record of their importation into Spain is supplied by Columella, who states that the sheep of Tarentum were taken to Baetis. This assertion is endorsed by Calpurnius. See Antiquum Textorum.

in the minds of all Europe that two things were absolutely necessary for the production of fine wool; the climate of Spain, and the custom practiced by her people of driving the flocks long distances to and from their summer pastures. This latter belief, though all the sheep in Spain were by no means *transmute* or migratory, was shared by the Spaniards themselves. Laws, called the "*Rules of La Marche*," were passed setting aside large belts of country as roads over which the sheep could be driven, and every precaution was taken for their undisturbed passage. As the sheep were principally owned by the nobles, in whose interest all legislation was enacted, these "*Rules of La Marche*," often bore heavily on the agricultural interests of the common people.

In 1775 and 1778 the Elector of Saxony obtained permission to import from Spain one hundred rams and two hundred ewes. Judicious crossing of these and other importations with the native breeds, produced inside of thirty years a race of sheep which have even finer wool than the Spanish. They are known as the Saxony-Merinos.

Between 1768 and 1788, the Merino was imported into most of the smaller states of Germany. One hundred sheep were brought to Wurtemburg in 1768. These, however, were partly from the Rousillon flocks of France. In 1783 and 1788, Spanish sheep were imported into the Duchy of Brunswick and the Margravate of Baden.

Frederick the Great in 1786, obtained a number of sheep from Spain which were all lost, but Prussian breeders bought Saxo-Merinos. One of these importers, the enterprising and patriotic Count Von Magnis, on his estates in Silesia, laid the foundation of the Silesian breed. The present representatives of this breed bear finer fleeces than any other sheep in the world.

To the perseverance of Daubenton, France owes the improvement of her sheep. In 1775 he imported a few Merinos from Spain. By carefully dividing these into seven herds, keeping some pure and mixing others with the native breeds, he demonstrated, in the face of his people's settled convictions to the contrary, that the native sheep of France could be so improved that they would ultimately produce very fine wool. In 1783 he had the satisfaction of seeing eight hundred and thirty-two pounds of wool, grown on the descendants of his imported sheep, manufactured into cloth. As a result of this practical proof, the French government imported from Spain to Rambouillet, the national farm, three hundred and sixty-seven rams and some ewes. Almost one hundred died from sheep-pox. The rest were placed under an agricultural board, whose attempts to increase the size of the carcass, and weight of the fleece, were crowned with success. In 1796 the average weight of the clip had increased to six pounds and nine ounces, while in 1801 the weight was nine pounds one ounce. The price during the same period rose from five frances ($1.00) to twenty-seven frances ninety-five centimes ($5.59) per fleece, proving that the manufacturers rapidly appreciated the value of the wool, although at first they had attempted to depreciate it, thinking their profits would be greater if the raw product continued to be imported. From the Rambouillet stock are descended the present breed of sheep known as the French Merino. Their large size and hearty constitution enables them to bear heavy fleeces, even when kept under rough conditions. They are consequently popular in Utah, Arizona and the extreme Northwest.

Without describing in detail the importation of the Spanish Merino into the other countries of the continent, we can state that before the beginning of the present century, a few of these animals could be found

in every State in Europe. During the present century the careful experiments of the continental governments of Europe have given their several peoples breeds of sheep as nearly as may be adapted to their condition. Of late years, since mutton has become the chief object, especial attention has been bestowed upon feeding experiments, and the production of mutton sheep. This is particularly true of Germany and Austria.

The only country where the Merino has not proved a success is England. In 1780 Lord Auckland induced the Marchioness del Campo de Arlange to present to the King, George III, five rams and thirty-five ewes of the Negretti variety. These were kept at Oaklands, a country seat of the Duke of York's, and considerable effort was made to induce the farmers to cross them with the native stock. But the Merino found in England rival breeds of sheep, which had been the result of years of care and thought. In the rest of Europe, as I have stated, the native sheep bore coarse wool and gave coarser mutton; in England, the wool by comparison was long and lustrous, the carcass large, the mutton juicy. The fine-wool stranger, in spite of the high price obtained for his fleece, was unprofitable. People refused to eat the comparatively coarse mutton. Then too, the eye of the farmer had become accustomed to his handsome, short-legged, fat, barrel-shaped sheep; while the Merinos were long-legged, and troubled with an excessive throatiness, which gave, and still gives them, an awkward, ungainly appearance. The damp climate was another drawback.

If the Merino failed to obtain an undisputed footing in the mother country, its success in Australia is one of the industrial wonders of our time. Imported by Captain John McArthur in 1793, it was not until 1830 that people began to realize the advantages which cheap land, and an equable climate, give in the production of

fine wool. In 1845, however, the exportation of wool from the colonies had increased to twenty-four million pounds (24,000,000); in 1880 it was three hundred and ninety millions (390,000,000); and, notwithstanding the loss from drought of ten millions of sheep in the first years of the present decade, the exportation last year (1889), is estimated at five million five hundred pounds (5,000,500). Ninety-five per cent. of the wool of Australia is clipped from Merino sheep. On the other hand, half of the sheep of New Zealand are "Crosses," a term usually confined to a cross between a Spanish sheep and one of the English breeds.

In South Africa, the Merino is practically the only blood which has been used to improve the coarse sheep. The wool now imported from these countries, while not so fine as the Australian, is superior to that grown in many of our western states and territories.

The first introduction of the Merino into the United States was in 1793, when three fine rams were smuggled out of Spain and sent to William Forest of Boston. That gentleman killed and ate them, thanking the sender for his present of mutton. It is safe to assume he never dined so expensively in his life, for the three animals were probably worth at the time and place over four thousand dollars. The next attempt was more successful. In 1801 the celebrated ram Dom Pedro was imported to Wilmington, Delaware. In the next six years he became the sire of many fine-wool flocks in that State and on the banks of the Hudson. Col. Humphreys Davis, of Connecticut, and the Hon. R. R. Livingston, of New York, also imported Merinos in the first years of the present century. In 1809 William Jarvis, Consul at Lisbon, bought at auction three thousand eight hundred and fifty animals, and shipped them to the United States. From this nucleus of about five thousand sheep are descended the fine-wool flocks of our country.

Previous to 1801, there were two kinds of sheep in North America. The animals to be found in the Eastern and Middle States, including some in Virginia, were the descendants of those brought over by the original English immigrants. They were probably taken from the poorer flocks of England. Thus we have an account of a few sheep brought with the first settlers to Jamestown, Virginia, in 1607. This is our earliest record. Owing to neglect, the sheep of the colonies were not materially different from those flocks with which the Merino had been crossed on the continent of Europe. Eighty years of care and patience have produced wonderful results. The stud flocks of Vermont, New York, Ohio and Pennsylvania produce the heaviest fleeces in the world. In the grease, or unwashed, they have been known to weigh over thirty pounds, while part of the clip contains as fine, if not finer wool, than their Spanish ancestors. No praise is too high for the intelligent perseverance which has produced this result; and while we shall have occasion to criticise the standards of excellence which our breeders have adopted, we must admit that they have been marvelously successful along those lines of improvement which they have considered most desirable. The descendants of the cross between the sheep of the colonists, and the Merino, is spread over New York, Western Pennsylvania, Northern Virginia, West Virginia, Ohio, Indiana and Illinois, and the other central Western States.

There was another sheep on our continent, besides the descendants of those brought over by the English immigrants. In the pine woods of the South Atlantic and Gulf Coast, in the Southwest, in Texas, Mexico, and Central America, is found, the American Scrub, the degenerate descendant of the early Spanish importations. They, therefore, probably contain Merino blood, though it is doubtful whether the Spanish govern-

ment allowed any of the fine flocks to be sent to her colonies. The Scrub has in common with his Spanish ancestors a wonderful hardiness of constitution. The fierce battles of the rams at the rutting season, the rough food and hard life, were causes producing a process of natural selection which eliminated all but the strongest and healthiest animals. The glory of the Spanish fleece has, however, totally departed. The Scrub rarely produces more than two pounds of unwashed wool, which at the same time is so coarse that it is almost exclusively used in carpets.

The cross of the Merino and the Scrub is called the Grade. The per cent. of Merino blood is designated by fractions. Thus the first cross is a one-half blood, the second cross a three-fourths blood, and the re-cross of a one-half grade ram with a Scrub ewe is a one-quarter blood. At present the Grade sheep is the most numerous variety in the United States. The pure Merino is not a profitable ranch animal. Their constitutions, though by no means delicate, are not equal to the rough treatment. In the language of the plains, they cannot "rustle" for a living. Experience seems to indicate that for the West, as long as we retain the present practice of herding sheep on sparse lands, the best animal is a three-eighths blood. Except in the old South Atlantic and Gulf States and in Tennessee and Southern Kentucky, there are few absolutely unimproved Scrub sheep left. The herds of Southwestern Texas and New Mexico, however, have as a rule only a very small amount of Merino blood; though even in these districts the character of the sheep is being rapidly improved. Table III. will give the reader an idea of the extent to which the amelioration of the native breeds, or more properly the early Spanish importations, has been carried.

While before the beginning of the present century, the people of the continent of Europe did little to better the

character of their flocks, in England, from the time of Edward I., and even earlier, considerable attention was paid to raising sheep. All through mediæval times English wool was in high repute on the continent, and was exported in considerable quantities to Belgium, Holland and France. Edward I. attempted to prohibit its exportation, in the hopes of stimulating native manufacturing industry. This prohibitory policy, though somewhat modified, was continued until the reign of Elizabeth. In 1660 it was again renewed; the last enactment remaining on the statute books until 1825. In the latter years of the eighteenth century, instead of being in a position to export wool, England began importing fine fleeces from Spain.

In 1800 there were almost as many breeds of sheep in England as there are counties. The slowness of communication between the North and South, together with the fixed nature of land tenure, which kept estates in one family for generations, and lent family pride to local prejudice, prevented the intermingling of the sheep of different counties, and gave to the breeds of each their distinctive characteristics. This distinctiveness in some respects they still retain, though each of the more celebrated varieties is widely scattered over the earth.

We must not suppose, however, that the English breeds have not been improved in the last ninety years. There is probably more difference between the Long-wool and the Down sheep of our day, and those of the eighteenth century, than there is between the original Merinos imported from Spain and their modern descendants. To appreciate the direction in which the improvement of English sheep has taken place, let us glance at some of the most noted breeds. These may be divided into two classes; the Long-wool, and the Down, or medium wool sheep. The principal variety of the Long-wool sheep is the Leicester. In fact, the Cotswold,

Lincoln and other breeds of this class are rather sub-varieties of the Leicester than distinctive breeds. The Leicester was brought to its present state of perfection by Blakewell. The wool is ten inches long and very soft. The Lincolns, which were once a distinct breed but now contain much Leicester blood, have, as will be seen by the table (Table I.), somewhat heavier frames. The fleece is also heavier, and the wool coarser and more lustrous. The heaviest sheep are the Cotswold, though their mutton is coarser in the grain. On comparing the relative value of these animals, it must be remembered that as a large and steady demand for long wool has ceased, they are valued principally for their mutton.

The Down breeds, or middle sheep, more nearly satisfy the demand of modern markets. The principal varieties are the Southdown, the Oxford, the Hampshire and the Shropshire. The fineness of the fleece is in the order named, though there is little difference between the first three; the Shropshire, however, is much coarser. The wool of the Downs can be compared to that of a quarter grade merino sheep, and is always marketable; while the mutton, though less in quantity, is of better quality than that of the Long-wool or heavy breeds.

Table I. will enable the reader to compare the commercial value of these English sheep with the Merino. In its examination, however, two additional circumstances should be taken into consideration. The lamb of the English breed is hardier, and reaches maturity sooner than his fine-wooled brother; but the full-grown Merino sheep, except for marshy lands, has a much better constitution. Two-thirds of the Grade sheep of the West, for instance, are kept under conditions which would in a short time kill any animal of English stock. The wool of the Merino grows close and thick, and becoming matted by the animal yolk or

grease, forms an almost impervious mass; while the long open fleece of the Leicester, or even that of the Shropshire and Southdown, is but a poor protection against cold winds and rain. Thus, though the English breeds fatten easily, and require, in spite of their size, only from ten to twenty per cent. more food to keep them in good condition, still the Merino can survive and bear some wool on the roughest and most scanty diet.

The principal homes of the mutton sheep outside of the mother country are Canada and New Zealand. Most of the sheep of the former province contain Shropshire blood, and, as before mentioned, one-half of the sheep of New Zealand are cross-breeds. The distribution of the mutton breeds throughout the United States is shown in Table III. The sheep of southern New England, eastern New York and Pennsylvania, contain a great deal of Shropshire and Southdown blood. The improvement of the sheep of Virginia, and the slight improvement which has taken place in the South Atlantic States, have been almost exclusively with Shropshire rams. In the western part of the Middle Atlantic States and in the Central Western States, while the Merino is still the most numerous breed, the English sheep are rapidly gaining ground. This change has been especially marked since the fall in the price of wool, following the adoption of the tariff of 1883. Thus in Illinois the proportion of mutton sheep has increased from twenty to fifty per cent. The fall in the price of wool seems but to have accelerated this change in the character of the sheep. In 1870 there were few mutton sheep west of central Pennsylvania or New York, yet we see (Table III.) that in 1883 fifteen or twenty per cent. of the sheep of all the Central Western States contained more or less English blood, and in southern New England and eastern New York the change from fine wool to mutton sheep was already complete. West of the Mississippi,

with the exception of the State of Iowa, there is little else than Grade-Merino, though the States of Washington and Oregon have some Long-wool and Shropshire crosses. In the Southwest, in Utah, in Nevada, and even in Kansas, Nebraska, Colorado, and adjacent states and territories, there are practically scarcely any sheep which have English blood.

Let us now turn to the coarser wools grown on unimproved sheep. The bulk of the coarse wool of commerce is clipped from breeds which have been for centuries similar to what they are to-day, because they have been raised by the farming population of the Orient, who are the most unprogressive of all Caucasian people. Some breeds in the East are especially noted for the immense size to which the tail is developed. In parts of Asia Minor little two-wheeled carriages to support the appendage have to be fastened to the animals, as the weight of the tail is too great to drag on the ground. This practice of fastening little carriages to the sheep is described by Herodotus as customary with these people in his day. Fat meat being more highly prized than lean, a portion of the tail is considered a great delicacy.

Southern Russia exports immense quantities of carpet wool, grown on her Dronskoi breed of sheep. The wool is hairy, coarse, and about five inches long. The sheep seldom carry more than one and a half to one and three-fourths pounds of wool in the grease or dirt. The fleece only shrinks in scouring, however, from ten to sixteen per cent. The wool grown on the native sheep of India is also coarse. The highest grades of carpet wools come from Great Britain and South America. In the former country, the wool is grown on the Highland and Welsh Mountain breeds. The carpet wool of the latter country is imported mainly from the Province of Cordova, in the Argentine Republic. The majority of

the clip of South America is now above the grade of carpet-wool, and the fleeces from that country will probably steadily improve, until little or no coarse wool is grown there.

We have now discussed in a general way the character and distribution of the different breeds. If the reader will glance at Table II, he will see the relative amounts of wool produced by our own and foreign countries. The figures in the table do not pretend to be more than estimates. They serve simply to enable one to obtain a general view of the subject. It will be seen that Australia is by far the largest wool-growing country of the world. This is on account of the high average weight of the clip. The shrinkage of wool in scouring is due to the proportion of animal yolk or grease in the fleece, and to the presence of such foreign substances as burrs, sand, and dirt. In such countries as the United States, where many breeds are used, the average shrinkage which is about 51 per cent., tells us little about the clip from any section. On the other hand, in Australia, practically all the sheep being of pure Merino blood, there is little variation in the shrinkage. Owing to the wide difference in the amount of shrinkage and weight of the fleeces, the number of sheep in any country is a very poor indication of the amount of the product. Thus Russia has nearly twice as many sheep as the United States, yet the weight of our clip in the grease is more than double that of Russia. When, however, both these countries are compared on the basis of their production of scoured wool, we find them almost on a par. As a rule the wool of Merinos and their crosses have more yolk and shrink more than the carpet or combing wools. The large shrinkage of seventy-five per cent. which we find in the wool of South America is due in a great measure to the presence of burrs and dirt.

CHAPTER IV.

SHEEP-RAISING IN THE UNITED STATES.

As far as the method of sheep raising and the care which is given to them is concerned, the sheep of the United States can be roughly divided into three kinds, viz.: the field, the ranging, and the roaming or Southern sheep.

The first are those kept in fenced fields. This is the method employed in all States north of Mason and Dixon's line, and in the States north of Arkansas which border on the Mississippi River. The sheep in the eastern parts of Kansas and Nebraska, in the more settled parts of the Dakotas and Minnesota, and in Northern Kentucky and Virginia, are also pastured in enclosed fields; while throughout the old South a few sheep are also kept in this way. The raising of what we have called field sheep is essentially an auxiliary industry. We seldom find a farmer exclusively engaged in the business. The total number of the animals kept in enclosed fields is about fifteen millions.

The vast majority of the Western sheep are run on large ranches. One or two ranchmen will guard a band of fifteen hundred or two thousand. Of these sheep it may be said that the snow of winter freezes them, the heat of summer scorches them, rain and hail beat upon them, and they know no covering but the canopy of heaven, no bed but the open prairie. True, in the extreme North, in Washington, Northern Oregon, Montana and North Dakota, the flocks are usually separated in winter into smaller bands and pastured near the corrals or open sheds; while during extreme weather

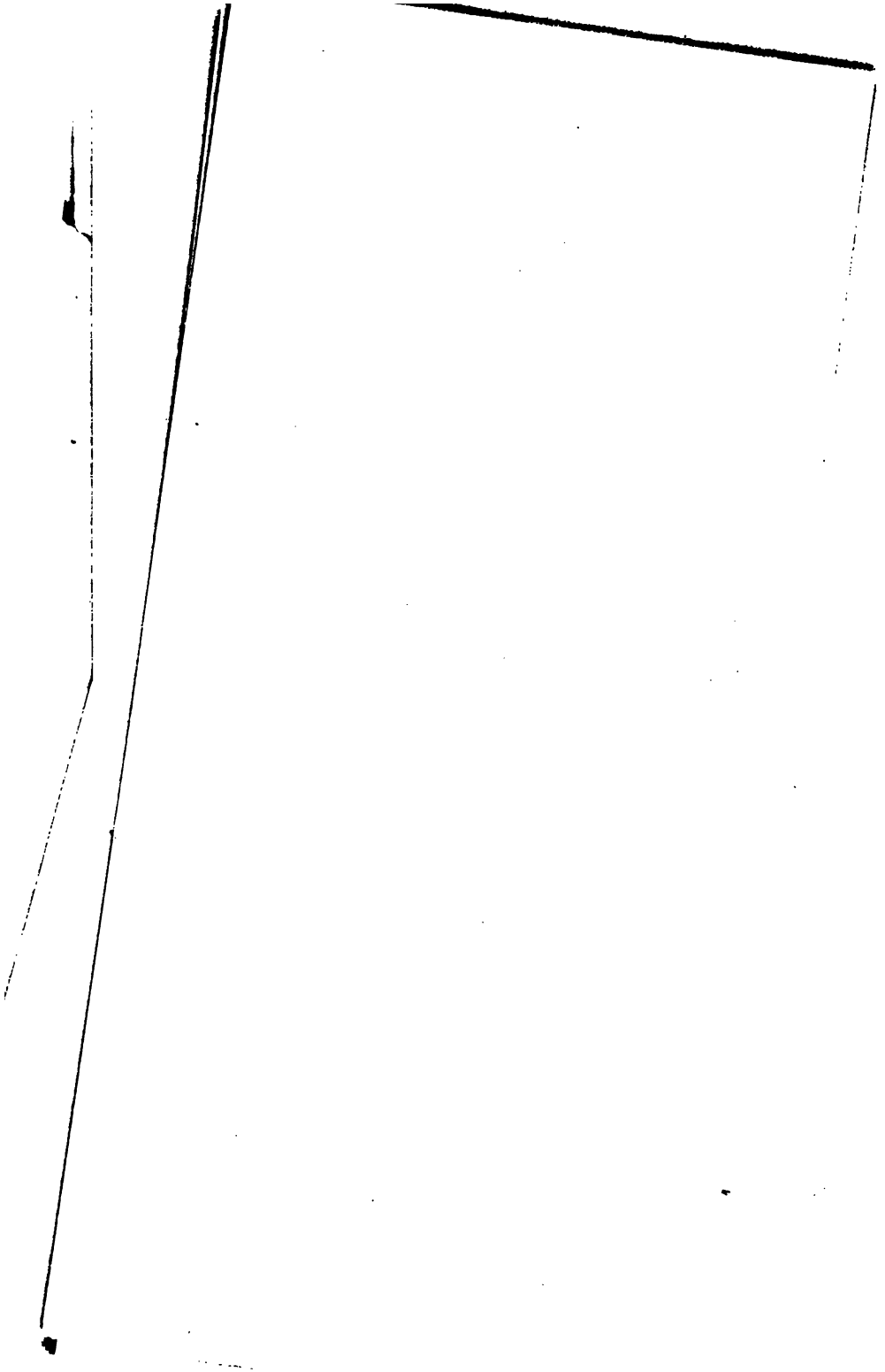
they are driven under the corrals for shelter and feed. But even in these far Northern States the sheep are placed on the ranch at every opportunity, and allowed to "rustle" for a living.

The roaming sheep are confined exclusively to the South, and particularly to the pine woods country along the South Atlantic and Gulf coasts. These are the sheep which receive absolutely no care, and which wander, unhindered, over the waste pine lands and through the "piney woods." For the heat of summer the trees provide them with shade; and as for winter, the equable climate in which they live knows not the meaning of the word. The land is sometimes free, that is to say, owned by the State or the United States. In some States, such as Georgia, there are no more free lands, but there are still many wild or waste tracts, owned by persons who never see them, and on which roam the sheep and hogs of the small farmer. About April 1st the inhabitants of a county or section of country participate in what is known as a "wool hunt." The sheep seldom stray very far, for they are not wild animals. The domestic blood of their Spanish ancestors still runs in their veins. For three hundred years they have been neglected rather than abused. Thus, for the most part, they have only ceased to be tame in one sense—they do not turn to man. The English sparrow in our large cities is said to look on human beings very much as does the Scrub sheep of the South, without fear and without affection. Thus the wool hunt, which means catching the sheep, is not a very difficult undertaking. Being caught they are sheared, marked with the owner's brand, and turned loose for another twelve months. Every man is entitled to the wool of those sheep marked with his brand. The entire clip of the county is generally brought to the county town, and there sold in one lot to the highest bidder.

Table III is designed to give a general view of the present condition of the industry. The varying numbers of sheep in the several States from 1840 to 1890, shown in the diagram, are taken from the Government report on "Wool and the Manufacturers of Wool," issued in 1888. The column giving the present number of sheep in the different States and Territories, is based on the latest State and National reports, and the opinion of sheep raisers. The other information given in this Table, as also that in Table V, is based mainly on estimates made in reply to a circular containing some sixty questions, sent out by the author, and on personal letters from those actually engaged in the business. Their accuracy and value must be tested largely by the uniformity of the replies received from a State or Territory. A general impression is apt to be much nearer the truth than an average of conflicting statements. In the West, where sheep raising is conducted on a large scale, there was little difference among my correspondents regarding the weight of the fleece, or as to the cost and price. In the East there was more variation in the replies, and the averages, consequently, are of less value.

The character of the wool clip of our own country, the proportion of the mutton to the fine-wool sheep, and the per cent. of sheep improved, are things which must be known before an intelligent discussion of the needs of the industry can take place; yet they necessitate a statistical research which the Government alone is capable of performing. All that individuals can do is to gather the opinions of practical men. No greater benefit can be conferred upon an industry, than to allow a committee from those actually engaged in it to consult with the Chief of the Census concerning the character of the statistics they wish to have collected.

The different facts shown by Table III. are brought out in other parts of this work.



The bulk of the clip of the United States is shipped to Boston, Philadelphia, Chicago, New York, St. Louis, and San Francisco. These cities rank as wool centres in the order named. Whenever it is possible to obtain what he considers a good price, the grower sells on his farm or ranch to the buyers from the wool centres. In this way most of the wool of the Eastern States is sold on the farm. In the West, however, it is usually shipped East by the raiser. In New England the large majority of the wool is sold directly to local manufacturers. The wool grown in the old Southern States is also mainly consumed by local mills.

Except in the West the market for mutton is not confined to the large cities. In New England, New York and Pennsylvania more sheep are taken by the local markets than are shipped to the centres of population. The same is true of the States of the Ohio Valley. The sheep of Virginia and Maryland are sent to Baltimore and Philadelphia. The sheep of the South are also largely taken by local markets, except in southern South Carolina and in southern Mississippi, where they are shipped to the markets of Savannah and New Orleans respectively. East of the Mississippi the proportion of sheep killed for mutton now includes nearly all the wethers and about thirty to fifty per cent. of the ewes, a rate which, if no contagious disease prevails, keeps the numbers of the flock about stationary. In the far West the mortality among sheep is greater, and the desire being to increase the size of the flocks, few of the ewes are killed before they are five years old. Wool is the chief object, so the wethers are also kept as long as the ewes. Every spring in Colorado, Utah, New Mexico, Arizona, Idaho, and Eastern Oregon, large numbers of these old sheep are brought up and driven into Kansas and Nebraska, where they are fattened on cheap corn, and in the winter and spring shipped by rail to St.

Louis, Chicago and eastern markets. It is calculated by Mr. Prince, of Idaho, that one hundred and fifty thousand sheep on their way from Oregon to Nebraska, yearly pass over the trail which runs near Boise City. A few sheep are shipped all the way by rail, but the rates are very high. From Boise City to Chicago the rate amounts to about 87 cents per head, and from Colorado about 50 cents. From Austin, Texas, and Helena, Montana, to Chicago, the rate is also 87 cents. These statements are the results of calculations based on the authority of the tariffs published for double-deck cars, as from points west of Kansas the rates per head are not given. Single-deck cars are forty per cent. less per car, or about twenty per cent. more per sheep. The railroads, it is charged, refuse to supply double-deck cars, or permit shippers to put in the decks. Therefore it has been found that the practice of driving sheep into Kansas and Nebraska is more profitable, though the long distance the animals have to travel, and the uncertainty of the climate and rainfall of the latter states, introduces a very large element of risk.

When the wool reaches the market it comes in competition with foreign importations. It is argued that Americans and foreigners do not produce under similar circumstances, and that the American wool-grower labors under great disadvantages. These disadvantages are usually classed under two heads: our climate, and the dearness of our labor. Before dealing with climate and cost, and in order to give us a better idea of the present conditions under which sheep are raised, I desire to speak of some other drawbacks to the industry in our country which are not generally known.

The first of these difficulties is the lack of uniform and standard grades of wool. The grading in the Philadelphia market, for instance, is a territorial division rather than one based on any intrinsic distinctions. The wools

STATES

Maine . .
New Hamp
Vermont .
Massachus
Rhode Isla
Connecticu
New York
New Jerse
Pennsylva
Delaware .
Maryland .
West Virgi
Ohio . . .
Indiana .
Illinois . .
Michigan .
Wisconsin
Minnesota
Iowa . . .
North and
Missouri .
Montana .
Washingto
Oregon . .
Kansas . .
Nebraska .
Wyoming
Colorado .
Utah . . .
Nevada . .
Arizona .
New Mexi
Texas . . .
California .
Louisiana
Mississipp
Alabama .
Georgia . .
Florida . .
South Caro
North Caro
Virginia .
Kentucky .
Tennessee
Idaho . . .
Arkansas .

experienced dealers and breeders. In Boston there is another method of grading wool. The wool from the

standard grades of wool. The grading in the Philadelphia market, for instance, is a territorial division rather than one based on any intrinsic distinctions. The wools

from Ohio, Pennsylvania and northern West Virginia, are first distinguished by the States in which they are grown. They are also divided into clothing and combing wools. The latter, about one-fourth of the entire clip, has nothing in common with the long-combing wool of the Lincoln and Cotswold, but is the Delaine combing wool, grown, as before explained, on the Delaine merino sheep. The grades above medium clothing, or delaine wools, are known as fine, fine X, XX, etc.; those below as coarse one-fourth blood. The majority of the wool from the States mentioned reaches the market in the dirt, or unwashed state. A larger proportion of the wool from this section, however, is washed than from any other part of the country. In Pennsylvania and Ohio the wool is sometimes washed on the sheep's back. This operation is usually performed by dipping the animal into a running stream—a barbarous practice, as nothing is more injurious to sheep than to become thoroughly wet; besides, the wool when it reaches the market is frequently known as unmerchantable, *i. e.*, poorly washed, and brings but little higher than unwashed wool.

The wools west of the Mississippi river are usually called Territories. There is no Delaine, and now very little carpet wool from this section. The greater part is medium clothing. The wool from each State and Territory is graded as fine, fine X, XX, and above; fine, medium, common, and coarse. The ram's wool in which there is a large quantity of dirt and grease is known by the further appellation of heavy. The proportion of the fleeces from the different States which would be graded above and below medium, is given in Table III. There are no statistics on the subject, and the figures must not be regarded as more than the expression of opinions of experienced dealers and breeders. In Boston there is another method of grading wool. The wool from the

Middle States, Ohio and Michigan, is graded as XX Picklock, XX, X, No. 1, No. 2, and Common. X and above is supposed to mean wool of full Merino blood. No. 1 denotes three-fourths Merino; No. 2, half Merino; and coarse, one-fourth blood and below. The clip of California is sold largely in Boston. As the sheep in that State and Texas are usually shorn twice a year, the clips are known by the further designation of Fall and Spring. The wool from California, especially that from the southern counties, is apt to contain a good many burrs. When not in this condition it is spoken of as "free."

In Chicago the grades are similar to those in the Philadelphia markets, except that there are no quotations for wool grown east of Indiana. On the other hand, the wool from the States immediately west and south of Chicago, is sent exclusively to that city.

This territorial division of wools makes anything approaching standard grades an impossibility. The wool from Colorado, for instance, is twenty per cent. better to-day than a few years ago. The change in Utah has been even more marked. Arguments from a comparison of price-lists are thus rendered useless. The reputation which a State or Territory has had in the past affects the value of the wool, and discourages attempts to improve the fleece. In Texas, if one ranchman improves the character of his sheep, he will obtain little more than the price received by his neighbors, though the buyer will sell the wool at an advance to the manufacturers. But failure to reward an attempt to improve the fleece is not always the fault of the middle-men. Even the commission merchant cannot sell a consignment of wool from Texas as high as a consignment from Pennsylvania or Ohio, though there should be no difference in the quality, character or condition of the fleeces. Thus the old proverb of giving a dog a bad name holds

good in the wool trade. The more ignorant the population, and the smaller the scale on which sheep-raising is carried on, the more unequal is the competition between breeder and dealer. In the South, for instance, ask one who still raises sheep in spite of the ravages of curs and blacks, why he does not try to improve the character of the wool, and he will probably point to an instance where such an attempt was made, and the single buyer, who passes yearly through the country purchasing for local mills, refused to pay more for the clip. Even when the clip is sold at auction in the county town, the farmers, being ignorant of the value of their product, do not always drive a good bargain.

The wool of all ranch sheep varies yearly in the strength and elasticity of the fibre, in the proportion of sand and dirt with which it is mixed, and in the number of kemps or dead hairs it contains. This is due to variations in the climate from year to year. Change in the food, provided the sheep has sufficient nourishment, contrary to the common impression, will have little or no effect on the quantity or quality of the wool. It has been contended that the fact that Australian sheep were fed on natural grasses all the year round, lent an evenness to the fibre which could not be obtained where the animals were placed on dry fodder during the winter months. But the careful experiments of Wm. McMurtrie, Ph. D., given in his report on "Wool and other Animal Fibre" published by our Government (1886), indicate that there is no difference in respect to the evenness of the fibre, between the Australian and well-fed Vermont Merino. On the other hand, the slightest diminution in the quantity of nutriment, when the animal has had barely sufficient to keep him in good condition, immediately affects the character of the fleece. If the winter is short and mild, and if the spring rains make the summer grasses on the prairie thicker than

usual, the wool will be twenty per cent. above the average, the fibre comparatively strong, and the fleece free from dirt. On the other hand, a hard winter and a dry, hot summer will render the fibre, however fine, useless for any purpose where strength is required. To illustrate the effect of climate. When the snow is deep, the half-starved animals find with difficulty the white sage bush which forms their main, and in many cases their sole winter diet. The rate of the fibre's growth is greatly lessened, while the small portion grown is very weak, and at the same time, that which was grown the previous summer and fall, when the animal was better fed, is also affected. The whole fleece is thus filled with kemp. If the summer is hot and dry, the quantity of the finely powdered sand, which weights the fleece and cuts the wool, is greatly increased.

The weakness of the wool from the Territories is not confined to years when the winter has been severe or the summer dry. West of the ninety-ninth parallel, except possibly in Western Oregon and parts of Montana and California, sheep in the best of years never receive sufficient nourishment for twelve months together. The way in which sheep are kept in Utah, and the effect of the insufficient nourishment on the fibre, is well brought out in the following, taken from a letter written by Mr. Charles Crane, President of the Utah Wool Growers' Association, and the largest owner in that Territory:

"The sheep when shorn in June have usually an abundance of nutrition, feed, grasses, etc. (This must be taken from a western ranchman's standpoint.) Hot days, and the sheep being fat, makes the oil or yolk come to the surface of the wool. This continues until the fall, when the feed is dry and the sheep commence to get poor. Cold comes on, and no shelter is afforded them. Snow, rain, sleet, etc., pour down on them. The sheep get poorer, the wool stops growing, and grows but

little during the whole winter. But as soon as green grass starts up in the spring, up comes the wool, with the nice oil in it to give it life. But the old wool (*i. e.* that which has grown the previous summer), is harsh, brittle, dry and comparatively rotten. Thus when shorn, half of the wool has yolk, while the other half has none. *Result*—a defective staple, weak fibre, etc."

From the above it will be seen that many western fleeces, no matter how fine they may be, could never, unless the sheep receive more care than they do, equal the clips of Australia.

The difference in the character of the clip of any State from year to year, renders the necessity for standard grades more imperative than if the quality of the wool was uniform. The manufacturer, not knowing how much scoured wool he is buying, taking each year the clip of a different ranch, and having to purchase with the wool he wants a great deal of wool which he does not need, naturally sees the price is low enough to protect him. On the other hand, the Australian wools have been fine for a number of years. The industry is conducted on such a large scale, that the clip of a station or run is often well known in the London market. Thus the flocks of Sir Samuel Wilson, or the Ercildown, Mount Bute, Victoria clips, are famous the world over. In England, the agents of manufacturers often buy by the name of the breed or owner, without looking at a sample of the wool. The same thing is true of English wools in this country. One county in England has produced the same wool for years. When the manufacturer buys, he knows as well as any sample could tell him, the character of the product.

To add to the disadvantage under which American wools labor from the lack of standard grades, because of the great variations in the fleeces from year to year, the

wool growers make no attempt to sort the wool. In Southern Africa and Australia the wools are often sorted before shipment. There are always several grades of wool in one fleece. The finest grade is cut from the sides, back and shoulders of the animal; another grade grows on the haunches and breast; a third comes from the belly. Of course, there may be many sub-divisions of the above classification. After sorting, the wool is shipped in sacks or bales, weighing from two hundred to a thousand pounds. Those from Australia are from six to seven hundred pounds in weight, those from Montevideo and other countries of the Rio Plata will run as high as one thousand pounds. The wool from the Cape, having a greater per cent. of yolk, is heavier than the Australian, but the bales are smaller. The average weight last year was between three and four hundred pounds. Bales from the East are very irregular in size, and in the number of pounds of wool. English wool is imported in sacks which will average two hundred and forty pounds a piece. American wool, on the other hand, comes into the market in separate fleeces. Each fleece is rolled into a bundle and tied by a heavy twine. Where foreign wool is imported in separate fleeces, a portion of the animal's wool is used as a cord, and the fleeces themselves are always placed in sacks. Thus the buyer does not have to pay for twine at its weight in wool. Then too, the fleece is never stuffed, as is almost the invariable practice in this country. Stuffing consists in rolling up in the fleece locks and tags, or broken pieces of wool, together with the soiled buttocks and the fibbs, or short coarse locks from the legs and face. Not infrequently pieces of dirt shaken from the fleeces in clipping are added. The wool growers make a great mistake in thus weighting their wool. Anything which renders the buyer uncertain as to the value of what he is purchasing, not only

reacts on the selling price, but handicaps the grower in his struggle with foreign competition. Many recognize this. Some have tried to stop the practice, others have attempted to sort their fleeces, but they have met with little success. The dealers refused to pay more for sorted wools. Thus, the few who have tried it, found sorting did not pay. As for stuffing, not to stuff your wool would be like a manufacturer trying to pay his hands twenty per cent. higher than his rivals: unless you have united action on the part of the manufacturers, it cannot be done. Competition, that supposed panacea for all human ills, makes it impossible for a man to be more honest than his neighbor. A bad practice, like bad money, drives out the good. Wool growing is no exception to this rule. To induce the individual wool grower to stop stuffing, one would have to make such a course more profitable. As a matter of fact, it has been found that for one to make a change, results in a loss to him as an individual; for again, as in the case of improved wool, the dealer or manufacturer refuses to reward his efforts.

This exemplifies a truth uniformly overlooked by the advocates of "laissez faire." Competition, it is asserted, causing every one to seek his own interest, will naturally produce the least expensive and therefore the best methods of production. Unfortunately, as in the case of stuffing, often an improvement which might be better for all, if all undertook it, would be the ruin of one who singly attempted it.

After the fleeces reach the market they are sorted. This may, at first glance, seem to make the grades of wool as quoted more stable than they might appear from the foregoing discussion. The sorter has in his mind what XX Ohio, or one-half blood Ohio, should be like; and when a fleece from that State is brought to him, he sorts the wool according to his own idea, regardless of

the animal from which the wool is clipped. Thus a single fleece may pass into two or more grades. This explains what sometimes puzzles the Western ranchman. He has a flock of sheep which he knows to be one-half blood or medium. He ships the clip to market, and it is graded as one-quarter coarse and two-thirds fine. Now, of course, this would greatly lessen the force of some of my remarks on the variations in the condition of the fleece, if it were not customary for brokers and commission merchants to change the fineness of a particular grade from year to year. Thus "fine X and above" is said to be graded twenty per cent. higher in Philadelphia this winter (1890) than last year. Dealing in "futures" is therefore an impossibility. If I contract to deliver to "A" on the first of June ten thousand pounds of fine X Ohio, and when the date comes I should desire to avoid my bargain, I can practically offer him any wool I choose. He may say that the fleece is not what he ordered. I may reply, it is what I call fine X. Or, if he desires to withdraw, he can refuse to take the wool which I send him, no matter how fine it may be. Hence there never has been a contract, "fine wool" being a term varying with every year, in every market, and almost with every dealer. With us then there is an imperative necessity for standard grades. These grades must necessarily be of scoured wool. The difference in the shrinkage, and the variations from year to year of even fleeces from the same ranches, render anything like standard grades of wool in the dirt impossible.

A wool exchange has been suggested as a means whereby standard grades could be established. Its practicability the author does not feel himself in a position to discuss, but every scheme whose object is to bring the wool grower nearer the manufacturer and which enables the former to appreciate the wants of the latter should be carefully considered. Theoretically

there is much to be said in favor of such a project. The present competition between the grower and the middleman is a very unequal one. The former, shut up on his lonely ranch, knows little of the needs of the market or the prospect of next year's crop outside of his own State. His sole means of judging of the fairness of the price bid for wool is the price he has received in previous years. He knows not when to accept, nor when to refuse an offer. A price one cent higher than in former years may be low, or, on the other hand, a price one cent lower may be high; yet in all probability he will accept the first and refuse the last. The ranchmen now lose all the little advantages of trade which spring from the knowledge of future demand. The cotton exchange has obviated these difficulties in that industry. A wool exchange, both on account of the smallness and varied nature of the product, will be a much more difficult undertaking; yet, with our genius for organization, there seems to be little reason why it could not be accomplished. However, whether a wool exchange, similar to our cotton exchange, will be beneficial or not, certain it is that the wool growers need a strong, intelligent National Association, which will, by united effort, render impossible all such practices as stuffing.

The other drawbacks to the success of the industry in America, touch more nearly the actual raising of the sheep themselves. One of these is the ignorance of the average farmer. I do not inclue ranchmen in the term. It seems to be the universal testimony, that those who are at present in the business, for the most part, understand it. This could not have been said a few years ago. Of late, the inexperienced ranchmen have lost capital, and gained experience. At the same time, I do not wish to imply that the American farmer of the Middle and New England States is not far more intelligent than the peasants of Europe, who seem to

understand the raising of sheep; but simply that sixty per cent. of our farmers do not know how to keep these animals. To a query addressed to persons in each State, who undoubtedly understand the business, asking whether the farmers in that State used proper care, the answers received stated that forty, fifty, or in Western Pennsylvania, Ohio, and parts of New York, sixty per cent. take good care of their stock; the rest are slovenly. In New Jersey and Southern New England a man who can raise sheep is regarded as having a peculiar gift; just as before the people of Illinois learned how to raise hogs, the neighbors would say of one who was successful, "So-and-so has a knack of raising hogs." In New England, in 1840 and 1850, people knew how to care for sheep. But as the price of land rose and the price of wool fell, raising sheep for wool became unprofitable. Then would have been the time to introduce the mutton breeds. But there were no Federal or State stock farms to sell, at low cost, rams suited to the condition of the people. The fine-wool animal was killed off, and no breed arose to take his place. It is only within the last ten or twelve years that there has been an effort to introduce the Shropshire, Southdown, and other English rams. What took place in Southern New England, Eastern New York, New Jersey and Eastern Pennsylvania, thirty-five to forty years ago, is taking place today in Western Pennsylvania, Ohio, Indiana, Illinois, and Michigan. Now we have Agricultural Experiment Stations in all of these States. The wool growers ask Congress for higher duties, but not a word is said, nor appropriation asked, to conduct stock farms or to carry on experiments in breeding. Small farmers cannot pay high prices for their rams, and good Cotswold or Shropshire rams command anywhere from one hundred to five hundred dollars. The number of mutton sheep in the country has largely increased, but they are not, even in

New York, Indiana and Illinois, dispersed among small growers as they should be. These, seeing no immediate profit in fine wool, are rapidly killing off their sheep. Thus, the possibility of establishing a great industry, and of adding to the food supply of the nation, is being lost, not because raising sheep for mutton is unprofitable, but because we are bound down to an *a priori* theory, which seems to exclude all breeding experiments within the province of government.

It may be objected that without the aid of government we have succeeded in producing remarkably fine horses and the finest hogs in the world. This is true, and an explanation of the reasons why we have succeeded in these two cases, while we have partly failed in the case of sheep, will show the necessity for the State providing fine rams at a moderate cost. Take the case of horses. In the first place, a good horse is easily selected by those who are accustomed to them. Few farmers, it is true, own their own stallions. But a farmer who owns one, seldom has a sufficient number of mares to keep the animal exclusively for his own use. Thus he will make a business of renting him to his neighbors. What would our race of horses be to-day if every farmer had to own his own stallion? But we seldom find one who can afford to own a good ram, who has not sufficient use for him in his own flock. On the other hand, where on account of the rapidity of multiplication the male is cheap, as in the case of the hog, the intelligence of our farmers has been sufficient to produce wonderful results. Every farmer who raises pigs can afford to possess the best boars. We now have marvellous uniformity in kind, and excellence in quality. A picture of one pig in the Chicago market would do for any other. The ram, however, is not only expensive, but difficult to select. One who knows little of the wool market cannot from the appearance of the animal, as in the case of horses

and pigs, or even by weighing the fleece, select the best animal. Thus in order to diffuse among small farmers a breed of sheep especially fitted for the climatic and economic conditions of the country, two things appear to be necessary: first, long-continued and patient experiments, involving a considerable outlay of time and money; second, willingness to sell rams at a very low cost. This combination is never found outside the government Experiment Stations, or government Stock Farms.

Concerning the South, and the interest in that section of our country, I shall have more to say later. Those who raise sheep, if allowing them to roam in the pine woods can be called raising, thoroughly understand the animal with which they deal. Intelligent Northerners who have gone South to teach the natives how to raise sheep, have uniformly failed, not only to instruct, but to succeed themselves. But, though the Southerner understands his sheep as they are, he has not the remotest idea how to improve either the mutton or the wool. Like the Armenian or Persian, he can handle profitably the sheep which his father and grandfather raised before him; but give him an animal which requires a different treatment, and he will invariably fail. The sheep of Tennessee, Mississippi, and Alabama are absolutely unimproved, and in spite of prohibitory tariffs, they will so remain until immigration or education changes the character of the inhabitants.

To turn to another drawback. The chief glory of a Vermont ram is the unparalleled weight of his fleece. As before mentioned, fleeces have been clipped which weighed over thirty pounds. This increase of weight is not entirely due to the increase in the amount of wool. Prizes at State Fairs and by Breeders' Association have been uniformly given for the heaviest clip. Weight then, not the fineness or evenness of the fleece, has been

the principal object. Yolk bears down the scales as well as wool. Thus the proportion of this animal grease has been so increased that the shrinkage of the heavier fleeces is sometimes over seventy per cent. The prizes, if ever given solely for weight, should be distributed on a scoured and not an unwashed basis. A certain amount of yolk is indispensable, but too much only serves to chill the animal in cold weather. Weight, however, should not be the only object. The increase in the amount of wool is certainly desirable, but to sacrifice everything to that end is to erect a false standard.

The success of wrinkly Merinos is a proof of how with us the scales preponderate over all other considerations. The object in Australia has been to put upon the market a fleece, every part of which shall be as near as may be similar in length and in fineness to every other part. Sheep growing fibres side by side which differ in length, diameter and strength, are not used for breeding purposes. The evenness of the fibre from those colonies adds greatly to the value of the clip. On the other hand, in our desire for weight, we have produced breeds whose wrinkly skin causes the wool to lie in folds upon the animal's back, neck, and throat. The fibre which grows between the folds is both finer and more elastic than that which comes from the top of the wrinkles. I make this assertion on the authority of Mr. McMurtrie. He found the fibres taken from between the folds measured .0008385 of an inch in diameter, while those from the tops of the wrinkles measured .0009751 of an inch. The fibres from the tops were also longer in staple. And here it may be remarked that the fineness of the fibres growing between the folds would seem to indicate that the custom practiced by the Romans, of covering their sheep, in order to increase the softness and fineness of the wool, was not so useless as is generally supposed.

It is also asserted that in making the weight of the

wool practically our only object, we have paid too little regard to the strength of the animal's constitution. Certain it is that after eighty years of experience, we have failed to produce a fine-wool sheep as strong as our native scrub. It is fair to state, however, that the sheep of our Middle and Eastern States are peculiarly free from all kinds of contagious diseases. Grub in the head and paper skin carry off some of the lambs, while among full-grown sheep, indigestion, liver complaint, and in damp locations foot rot, are the most serious disorders. Nevertheless, the mortality is not large. In Indiana, for example, only 36,764 sheep died in 1889, out of a total of 950,000, showing that the State was free from contagious disease. Ohio, out of a sheep population of 3,500,000, lost 178,873. In the South, the sheep are very hea thy, though loss is sometimes occasioned by diarrhœa, brought on by eating the flowers of the partridge pea.

In all States west of the Mississippi River, however, and especially in Texas, Arizona and New Mexico, the scab is one of the ranchman's worst enemies. Like mange in horses and dogs, or the itch in men, the scab is a cutaneous disease. It is propagated by a minute insect, the acarus. The sheep rub, bite and tear the affected parts. The disease is always accompanied by great loss in the quantity and quality of the wool, and if not attended to, will shortly result in the animal's death. It first appeared in Texas just before the breaking out of the late war. Though not directly contagious, scabby sheep leave the acari on all objects with which they come in contact. These animalculae remain alive for a long time, ready to fasten themselves on other sheep. A pasture which has lately been inhabited by animals troubled with the scab, is therefore, unfit to use.

The scab is kept in check in the West by dipping the animals in a solution of turpentine immediately after

shearing. The disease has been greatly increased on our Western ranches by the low state of the sheep's vitality, owing to exposure and poor feeding. In fact, scab is often resisted by sheep in a perfectly sound condition, and no better proof could be given of poor nourishment than the presence of that disease. Our State and National Governments have done little to help the grower in his efforts to eradicate this serious obstacle to successful wool growing. Sheep affected with the malady are not always separated from the rest of the herd, and whole bands of more or less scabby sheep, distributing as they go the fatal parasite, are allowed to be driven across lands to which other flocks have access. In Australia, on the other hand, the strictest regulations are enforced. All sheep shipped into the country are quarantined and clipped, while sheep on the runs suffering from this or any other contagious disease, must be immediately killed. By such means, except in western Australia, all contagious diseases have been stamped out of those colonies, while with us the trouble is only temporarily kept in check by the application of "dips."

The next, and we believe hitherto the greatest drawback to the success of the industry in the West, are the Scrubs themselves. The fact that we have what we may call a native American breed of sheep, thoroughly acclimated, has been looked upon as one of our national blessings. None can deny that advantages have resulted from finding in the South and West a hardy race of animals. But aside from their constitution, the Scrubs are wretched beasts. In the first place, they are not fit to eat. As a consequence, the people who raise them have as a rule a positive distaste for mutton. The pound and a half of wool which they bear, while it might be coarser, is very far from fine. Where the scrub has been, or is, there the industry is on the wane or in a stationary

condition. Those States which never saw the Scrub, but only his improved descendant, are to-day increasing their flocks. Thus the wool from New Mexico, southern and even northern and central Texas, does not equal that of Montana, either in fineness or weight of fleece. Yet ten years ago there was scarcely a pound of wool grown in the latter state. Only the best Grade animals have been imported, and the industry has made rapid strides, in spite of cold, and the expense attendant on winter feeding. The number of sheep in Mexico and Texas, on the other hand, has either remained stationary or decreased. Scrub sheep were not found in Michigan, Wisconsin, Iowa, Minnesota, or the Dakotas, and to-day the character of the clip of all these states is excellent. If we had had no sheep in the country, or rather no Scrub sheep, it would have taken at first somewhat longer for the industry to have spread over the West; yet the history of the wonderful increase of the sheep in Australia, where both ewes and rams were imported, shows that success of the industry depends upon favorable conditions, not native breeds. As for the advantages of the strong constitution possessed by the Scrub, it is a question if flocks of Merinos imported into the country and allowed to increase would not be as strong as crosses of indigenous and hardy ewes with imported and unacclimated rams. But, even if our supposed importation of Merinos could not have withstood the effects of exposure in such a climate as that of Colorado and Wyoming, or the wretched living of Utah and Arizona, the fact would not have been an unmixed evil. It might, for instance, have confined our endeavors to raise large flocks of sheep to those parts of the country where climate and pasturage were suitable. The "hustling" qualities of the Scrub have led us to waste our energies in trying to herd these animals on every tract of cheap land from the borders of Canada to the Rio Grande.

The Scrub is the greatest enemy to the industry in the West, but the East and the South have a far worse foe. As will be seen later, part of Tennessee and South Kentucky is an ideal sheep country. Equable climate, cheap, good land, and nearness to the markets, combine to make this section the home of the fine-wool industry. Yet there is no part of the United States where sheep are fewer or more worthless. The causes which make that part of our country, where physical conditions are most favorable for raising sheep, one of the worst in which the industry can be undertaken, are exclusively social. The old South is kept from being the greatest wool and mutton producing section of the United States; not because the climate is severe or the land poor, for both are eminently favorable, but because of ignorance, indolence, darkeys and dogs. The cur is the bane of sheep-raising in the South, but the cur is the result of the character of the people. We must not suppose, however, that this dog nuisance is confined to the South. In the Eastern States, in New England, and the old West, large numbers of sheep are annually killed by the canine. At the same time there is no better criterion of the intelligence of the agricultural population of a State, than the proportion of the sheep which are annually sacrificed on the altar of a desire to keep a number of worthless curs. A population which will disregard their material prosperity for the sake of an occasional hunt, is not many steps removed from barbarism. Is it any wonder that amongst the most illiterate portion of our population, the desire for the possession of a large number of nondescript dogs is developed to the highest degree? Every darkey, and the majority of the white trash of Tennessee, the Gulf and South Atlantic States, keep from one to six hounds—long, lean, lank, hungry beasts. The dog must live, and he certainly can never do so off the "crumbs which fall from his master's

table." Ergo, he supplements his own scanty meal by a taste of mutton. One-fourth of the sheep of Florida, Georgia and Alabama disappear annually to satisfy the appetite of the cur and his hardly less destructive master. This does not only mean that the cost of raising sheep is increased; it makes sheep-raising, except in a desultory half-hearted way, an impossibility, and renders the increase and improvement of the flocks an impracticable dream. Even to have three per cent. of the sheep of the State killed, as in Massachusetts, implies a great deal more than one might suppose. It denotes that sheep have to be more or less watched or strong fences provided. The barrier that will keep a sheep in, will by no means keep a dog out. Thus the liability of flocks to be annoyed by dogs, even if none are killed, will increase the cost of raising sheep from ten to fifty per cent. The effect on the farmer is worse than the increase in the expense. When one, after years of painstaking, collects a flock of nice Merinos or Southdowns, to have half of them mangled by dogs, and the rest ruined as the result of fright, is something which damages will never repay. The farmer may start to keep sheep again, but two visitations end all idea of sheep raising.

The success of those who are not troubled with the cur, is an indication of the magnitude of the evil. One of the most energetic sheep-raisers south of the Ohio is Mr. Polk Prince, of Guthrie, Kentucky. He gives one dollar to his men for every dog they kill. The plan works admirably. He is seldom troubled with dogs, and as his sheep cost but little to raise, he naturally finds the business exceedingly profitable. The raising of wool and mutton is successfully carried on in some counties of Southwestern Virginia, because from this section of the State the negro and his dog have emigrated. Craig county, for example, has only a score of

negroes and practically no dogs. As a result, sheep pay better than any other stock.

We must not blame everything, however, on the negro. The dogs and the blacks are certainly a most formidable evil, but if the white population wished to eliminate the former, they could easily do so. Controlling the legislatures of the States, they could pass laws taxing the cur out of existence. But unfortunately it is not the darkey alone who loves to possess a large number of curs. Many of the poorer sort of whites would rather kill all the sheep in the United States than lose their tobacco, their whiskey and their hunt. When we realize that the comparatively intelligent farmers of the Northern States seem to be utterly incapable of uniting in any determined effort to eradicate the evil, one almost feels that he cannot blame the people of the South for their negligence, when he remembers that their ancestors were cursed by social conditions which induced habits of indolence, and that they themselves are surrounded by an ignorant, inferior race, struggling for political supremacy; conditions as unfavorable to social progress as can well be imagined. We cannot, therefore, be surprised if the dog question is the one subject on which the whites and blacks are united, the former falling to the intelligence of the latter. Industries may languish, land lie idle, but the cur must remain. Where the evil resulting from his presence is most formidable, as in Florida, there we find the least chance for any remedial legislation. He will be a brave legislator who will propose a dog law, and a rapid return to private life will be the sure reward of his temerity. The following extract from a letter written by one holding an official position in Florida, well illustrates the temper of the people:

"As long as there are coons (four and two-legged), deer, bears, possums, rabbits and partridges in Florida,

just so long the sheep will be kept down, that worthless dogs, and equally worthless darkeys, may exist. Laws are passed to protect partridges and mockers. This is all right, but the man who would hint that a dog law could be passed would be a fit subject for Barnum. Dozens of men in Florida live by hunting and fishing. The women and children pick cotton to buy tobacco. If a dog law was passed, what a howl would be set up at once! The wretched legislator would be relegated to private life with a rapidity that would lead him to inquire, 'who struck Billy Patterson?' For once there is no color line, no political boundary. On the question of dogs, Black Republican, Radical Democrat, Prohibitionist and Conservative can rally round the standard of one dog rampant, or one slut *couchant, sable;* six pups *levant, regardant, sable* or *argent.* Reverse, *sheep being devoured, argent.* But joking aside, the temperature will be decidedly frigid when a dog law will be established in the South."

In some instances we have been retrogading on the subject of dog legislation. In Kentucky and Missouri the dog tax has been repealed. The rest of the Southern States have never had such a tax. In all the Northern States we find either State or local taxation of dogs. The money collected forms a fund which is paid to those whose sheep have been attacked and killed or injured. This, while it compensates the farmer for his pecuniary loss, does little to encourage the industry. The farmer rarely re-invests the money so paid in sheep. As to the number actually destroyed, the official returns from Massachusetts place the loss in that State at 1,900, or 3 per cent. of the entire sheep population; from Connecticut 2,119, or 5.84 per cent. In the other Northern States the proportion varies from 1 per cent. in Illinois, Wisconsin and Michigan, to 4.63 per cent. in Indiana. These figures are given in Table III.

Where official returns could not be had, the numbers are averaged from the opinions of farmers. The proportion in the South is much larger; still it is fair to these States to say that the figures given practically includes the stealings by two-legged animals. The figures speak for themselves. A total of 716,678 sheep annually destroyed by dogs, is not a good showing for a nation confessedly believing in progress. Yet in Massachusetts, when it was proposed to muzzle all dogs in the State, ladies attended the sitting of the Senate Chamber with poodles in their laps, and an eloquent speaker made such a moving address on cruelty to animals that members were observed to weep. I do not wish to be understood as advocating any law enforcing the muzzling of dogs, but the incident shows how ignorance in one section and sentimentality in another clog the wheels of intelligent legislation.

As will be seen when we speak of cost and profit, a fair return could be had from the right kind of sheep, not only in the South, but in all the southern New England and in the Middle States. Not, however, where the cur is in the majority as in Delaware, New Jersey, Massachusetts and Rhode Island. Whenever this is the case it is only a question of time when sheep raising will be abandoned. A tax of ten dollars a year, strictly enforced, would, we believe, be a practical remedy for the dog nuisance. This tax need not be levied on the thorough-bred dog, which seldom chases sheep. Collies, for instance, when properly trained, are their best protectors; but if we are ever to have small flocks of sheep distributed among our farmers, we must destroy the mongrel hound by heavy taxation.

In the far West, as in all thinly settled countries, there is little or no trouble with the dog, but the coyote, panther, wolf and fox take his place and cause almost as much trouble. In New Mexico, indeed, there is little

annoyance from coyotes; but in Texas they cause the ranchmen a great deal of annoyance and considerable loss. The chief result of the presence of a number of coyotes, as in the case of dogs, is not so much the actual destruction of the sheep, but the great increase in the expense necessary to prevent such destruction. If it were not for these wild animals, a herder could take charge of a flock one-third larger than it is possible for him to guard at present. On ranches labor is practically the only item in the cost, therefore wild animals must add fully one-third. There is also an actual loss annually of three to five per cent. Worse than this, the presence of wild animals renders all other methods of raising sheep impossible. In Australia, for instance, sheep are never herded, but are kept in large paddocks or enclosed fields. This method has, as will be seen, many advantages, and if practiced in parts of our country would greatly reduce the cost of growing wool and mutton. Yet it would be idle to leave sheep unprotected in regions infested with wild beasts. After building the paddock, you would have to hire almost as many men as before to guard the flock. This has been the actual experience in southern California, where sheep often run in large fields surrounded by stone fences which were built by the Spaniards. Of late the number of wild animals has increased, and it has been found impossible to leave sheep without a guard.

The legislation on the subject of coyotes, panthers and foxes has been practically unproductive. It consists in giving bounties for the heads of the animals killed. In Texas the bounty is one dollar for panthers and fifty cents for coyotes, but as the proof of death involves a notary fee almost equal to the bounty paid, the law is well nigh useless. In Iowa, where the farmers are overrun with wolves, a law granting a bounty

of ten dollars on every female wolf killed, was introduced into the Legislature last year. That body, however, adjourned without action on the matter. If passed it is hoped that the law will prove efficacious, as at present these animals make sheep-raising in the State practically impossible. It is a waste of time to describe to a farmer the profits on sheep, when he knows that if he purchases a flock he will have to spend a life of constant vigilance to protect them from wild beasts. A gentleman who has had some experience says: "Any time in the night I may be called upon to chase wolves, and twenty-four hours will seldom pass without my discharging my gun several times in order to frighten these animals." Under such conditions, the highest prices and the greatest demand, will not make the State a great wool or mutton producing country. The extent of the drawback to successful sheep-raising resulting from the presence of wild animals, is well shown by the following extract from a letter written by Wm. L. Black, Esq., of Fort McKavitt, Texas. I take pleasure in copying this portion of Mr. Black's letter *in extenso*, as it deals with the subject from the standpoint of a practical wool grower:

"Wild animals and scab are the only drawbacks to producing wool at a very much reduced rate, and it therefore calls for the most careful consideration in treating of the subject of sheep husbandry in the United States. While the immediate cost of producing wool is equivalent to fifteen cents per pound under the most favorable conditions, it can just as well be produced at five cents, and afford the grower a larger profit. To reach this end, however, it is necessary to remove and destroy wild animals that are now the direct cause of probably two-thirds of this expense, in the wages of shepherds and incidental losses from flocks by frequent attacks of prowling coyotes and wolves, resulting ne

only in the loss of the sheep actually killed, but sometimes the loss of several hundred at a time that are cut off from the main flock and scattered on the prairies. The simple expense of land rent, shearing and lambing would be trifling, if sheep could be run loose in pastures, as they now do in Australia. That it is practicable to do this has been clearly demonstrated by our formidable foreign competitor, who had the same experience in early days as we are now having; and it would be very easy to pattern after her methods."

Concerning the last suggestion thrown out by Mr. Black, I shall have more to say in a later chapter. To exterminate the wild animals, he proposes an increase in the bounties. These, he thinks, should be paid by the United States government, and be sufficiently high to attract large numbers of hunters and trappers. Without discussing the merits of the plan, we agree with Mr. Black, that State action in many instances will prove useless. One State may destroy the wild animals within her borders, but unless her neighbors have similar laws, there will be a constant migration of animals into the more enterprising State. She will not only be required to kill all her own foxes, coyotes, panthers and wolves, but also a considerable portion of those belonging to her neighbors. We may not want a national, but we certainly want a uniform law on this subject.

In treating of certain drawbacks to the sheep industry in the past and present, I have not lent ammunition to those who assert that we cannot raise wool in this country. Of all the drawbacks I have mentioned, there are none which are of a necessary and permanent nature. So far as we have seen, there is no reason why we should not try to establish the industry in the United States. Many urge that it is too expensive. The force of the argument can only be intelligently estimated when we know the cost of raising sheep in our own and

other countries. We now know something of the industry and its distribution among the different foreign countries and the States of the United States. In the next chapter we shall examine the protection which our government has given to wool in the past, and also the rates of duty established by our present tariff.

CHAPTER V.

THE DUTY ON RAW WOOL AND OUR IMPORTS FROM FOREIGN COUNTRIES.

THE present division of wools into Class I, Class II, and Class III, embracing clothing, combing and carpet wool respectively, was first adopted in the tariff of 1867. The object was to make the wool used in woolen yarn or the clothing wool, the wool used in worsted yarn or the combing wool, and the wool used in carpets, pay different rates of duty. As we are at present capable of combing short-staple wool, it is impossible to make any distinction between combing and carding wool based on the different uses to which they are adapted. The custom house officials do not attempt to discover the use to which the imported article is to be put. The name combing is still exclusively confined to the long-staple wool of the Leicester, Cotswold, etc. As far as wool in the dirt is concerned, the classification of clothing and combing is of little moment, as there is only a difference of one cent per pound in the duty; but scoured combing wools pay only double duty, while treble duty is paid on all scoured wools of the first class. The definition and classification of carpet wool has caused a great deal of trouble. Not more than ten million pounds of wool suitable for carpets is grown in the United States. There is a firm in the city of Philadelphia who use that much carpet wool annually. In order that our carpet manufactories can continue, over 85 per cent. of the wool employed in carpets must be imported. The duty should be much lower than on clothing wool, as the proportion of raw

material used in carpets is much greater than the proportion used in clothes, and a duty on raw material falls more heavily on the manufacturer of carpets than on the manufacturer of cloth. In accordance with these ideas the tariff of 1883, which imposed a duty of 20 per cent. per pound on clothing wool, fixed the rate on carpet wool, costing 12 cents or less, at 2½ cents. But when we speak of wool which is suitable for carpets, we do not include all wools imported under class three. If one will take into his hand a sample of imported carpet wool, while he will notice that two-thirds is composed of long coarse hairy fibres, he will also observe an admixture of wool having a moderately short, fine staple. Wool grows much finer near the body than at the ends. Few animals have such coarse fleece that there will not be some clothing wool growing under the coarser fibres. Every lot of carpet wool can be separated, and the finer staples worked into cloths. Thus a considerable amount of the so-called carpet wool imported comes in direct competition with wool grown in the United States. The new Tariff as introduced into the House provided that carpet wools costing 12 cents or less per pound, should pay a duty of 3½ cents per pound. This would have injured the carpet men, without doing away with the present importation of considerable quantities of wool suitable for cloths below the regular rates of duty. The bill as finally passed has wisely modified the whole system of rates on carpet wool. The dividing line is placed at thirteen instead of twelve cents. On the cheaper grades a duty of 32 per cent. is imposed instead of a specific duty, while carpet wools above thirteen cents pay fifty per cent. duty. To draw an accurate line between carpet and clothing wool is practically impossible. As a matter of fact the wools are classed as carpet, not so much because of their quality, but because they were grown in a particular country. Instead of the division

into combing, clothing, and carpet wool, a more accurate division would be Long, Fine, and Coarse. And although it may not appear logical to combine a distinction of diameter with one of length, yet it must be remembered that the long wools, though by no means as fine as Merino, are very far from resembling hair, like some of the coarser grades of carpet wools from Russia and the Mediterranian.

All our tariffs on wool have been based on the unscoured product, regardless of the extent of the shrinkage in scouring. The duty on scoured clothing wool is treble that on wool in the dirt or grease, and is practically prohibitory. As we have seen, there is great variation in the amount of shrinkage in the wool from different countries, and that this is true even of countries which grow the same grade of wool. Thus the fine wools of Australia shrink fifty per cent.; those of South America seventy. As a result there is a discrimination against the finer South American wools, and the importation of fine wool from the Rio de la Platte is prevented. We find another example among carpet wools. The Bagdad wool of Asia only shrinks about fifteen per cent.; consequently the tariff on this wool is very low in comparison with that on other carpet wools. As a consequence it is only the superior quality of the South American carpet wool, and the mixture of fine staple which it contains, that makes its importation profitable. If our tariff rates were placed on a scoured wool basis, this discrimination between different countries would not exist. Our manufacturers, when they had to go to foreigners for their raw material, would have the whole world to choose from, instead of being confined to certain countries where the wool has a low per cent. of shrinkage. The trouble of course will be to fix the proportion of shrinkage for the different grades of wool from each

country. The difficulty, however, is not insurmountable, as for any one year the per cent. of shrinkage of the same grade of wool from the same country does not vary to any great extent.

Previous to the present tariff a mistake in classification gave rise to a practice very detrimental to wool growers. From 1883 to 1889 we imported 22,149,983 pounds of shoddy, mungo, waste, etc. This lumping together of all kinds of shoddy and waste was one of the mistakes of our tariff. Shoddy is wool or cotton which has been used in cloth. It is made from rags torn in a powerful machine, so arranged that it cuts and separates the fibres. Anything long enough to have two ends can be turned into shoddy. Where durability combined with lightness is not required, shoddy is a very serviceable commodity. The fact that it has been used before does not interfere with its properties as a heat retainer. As a substitute for pure scoured wool, it is much more employed in England than in this country; for cotton, the other great substitute for wool, is relatively much dearer there than with us. The importation of shoddy does not hurt the wool grower but the cotton planter, and the duty benefits the Southerner and not the Westerner.

Some kinds of waste are very different products from shoddy. Ring waste and wool tops are highly purified articles of scoured wool, which have had the inferior fibres, or so-called noils, removed by the process of combing. Ring waste, which was entered as waste, at a duty of five cents per pound, consists of those fibres which have slubbed or tangled in the process of spinning the tops into yarn. Garnetted waste, which was also admitted at the same duty as shoddy, is the product of the Garnett machine. In spinning, the slivers frequently become entangled, and portions have to be removed. These are fed to the Garnett machine for the

purpose of removing the twist given to the fibres by the carding engine. The product is really highly scoured wool, and should always have paid the treble duty imposed upon the scoured product. If it is contended that the duty would then be prohibitory, as the rate on scoured wool is proportionately much higher than on the unwashed product, I reply that this is rather an objection to the duty on scoured wools. To admit a product dutiable at the rate of thirty cents a pound at ten cents a pound, simply because it is called waste, is holding to the name and disregarding the substance.

The new tariff obviates the evil as far as the importation of ring waste is concerned. All shoddy and waste pays a duty of thirty cents per pound; but the rags, out of which the shoddy is made, will be admitted at ten cents per pound. This prevents ring waste and garnetted waste from being mixed with shoddy, and thus admitted at the lower rate of duty. Mungo is admitted at ten cents per pound. This is a kind of shoddy made from fine, but old woolen rags. Fine wool has, as we know, a short staple, and when these rags are torn in a powerful machine, the resulting shoddy, now called mungo, is more like dust than wool. If there is any mixture of ring waste it can be easily detected, and therefore it is impossible that there can be any evasion of the present rates on scoured wool. Shoddy proper, having a comparatively long staple, can be easily carded, but it is impossible to card mungo, and it is therefore pounded into the cloth, on which a nap is afterwards picked by the needles of the teasing engine. The mungo, when the cloth is put into rough use, quickly works out. The little short tufts which are apt to pull out of our rough overcoats are a sample of the wrong use of this product.

As intimated, we import from Australia nearly all the fine wool which we do not produce at home. In fact,

with the exception of Uraguay, which sends us about three million pounds, and Southern Africa, which sends us about one million five hundred pounds, all the fine wool imported comes from that country. Ninety per cent. of the combing wool is grown in Great Britain. The total importation of the wools of this class, however, is only a little over eight million pounds. Our carpet wool comes from Southern Russia, the countries of the Eastern Mediterranean, India, and the province of Cordova in the Argentine Republic. The bulk of our wool from these countries, as from Australia, passes through England. That country sends us in all only nine million pounds of wool grown in the boundaries of Great Britain, but she is the immediate country of shipment of eighty per cent. of all the wool imported. It would be interesting if some one could calculate how much we pay for this indirect method of importation.

As will be seen by looking at the table, there has been little change in the amount of the duty on the different grades of wool since 1864. The duty on clothing wool has varied between ten cents per pound and eleven per cent. in the tariff of 1867, to ten cents in the tariff of 1883. The duty on combing wool has followed the duty on wool of the first class; that on the lower grade of carpet wool has varied from 3 cents per pound to 2½ cents. The duty on the higher grades of carpet wool was 6 cents in 1867, and 5 cents in 1883.

In respect to the amount of duty on raw material, the tariff of 1890, besides the change to ad valorem duties on carpet wool and an increase in the amount of duty on waste, has made three alterations. In clothing and combing wools, the old distinction between wools costing over thirty cents has been abolished. As no wools are imported which are worth in London over twenty-five cents, this change is wholly immaterial. For all wools of Class I the rate has been raised from 10 to 11

cents per pound; and in Class II from 10 to 12 cents. With our present information it would be impossible to discuss the effect of these changes. We must first determine the cost of raising sheep in our own and foreign countries.

The second part of the table accompanying this chapter is partly designed to show how far the industry in the United States is capable of increasing. On the amount of this possible increase depends, in a large measure, the extent of the benefit which we can expect from a tariff on raw wool, provided that tariff is necessary for the increase of the industry. Our manufacturers consume about 325,000,000 pounds of unwashed wool annually. Of this we import 100,000,000 pounds. As the majority of the wool imported falls under Class III, measured by the value of the wool, we import less than one-third; but on the other hand, as the per cent. of shrinkage of most of the carpet wool is slight, measured by the actual number of pounds of scoured wool, we import much more than one-third. If we take the average shrinkage of the wool from the different countries, and the pounds in the grease or washed state imported from each, we find that in 1889 there was imported into the United States about 70,000,000 pounds of scoured wool.

Besides this we also import 140,000,000 pounds of scoured wool in manufactured goods. The present annual product of scoured wool in the United States is about 100,000,000; our total annual consumption being therefore about 310,000,000 pounds. To supply this demand we would have to increase our present production by 210 per cent.

CHAPTER VI.

THE COST AND PROFIT OF RAISING SHEEP IN THE DIFFERENT PARTS OF THE UNITED STATES AND IN FOREIGN COUNTRIES.

LIKE the "X" of Algebra, cost and profit stand for uncertain quantities in most industries. The raising of sheep is no exception to the rule. One makes a profit where another fails. The return being based on the prices of wool and mutton, though these may vary from year to year, is more easily ascertained than the cost. All men in one State or section of the country sell in the same market, but in production the personal element confuses our calculations.

In Table V, I have tried to set forth the cost and return from raising sheep in each State and Territory, and also the cost of raising sheep and return from wool in Australia and other foreign countries. The table also shows the decline in prices in America since 1882. This decline seems to have reached low-water mark in 1886–7. The increase in the price in some of the western States, such as Utah and New Mexico, is misleading, being due to the improvement in the fleece.

The average price which one will receive for his wool is not difficult to ascertain. The price of mutton, however, is more uncertain, and the figures given in the table must not be taken for more than an outline. There is probably nothing which varies so greatly as the price of meat, not only with the season of the year, but also with the age and condition of the animal. Old ewes or wethers may not bring three dollars per hundred pounds, when at the same time and place three-

months-old lambs, weighing from forty to fifty pounds, will demand seven and nine dollars per head.

In dealing with the cost of sheep raising, I have attempted to illustrate in the diagram, not only the total cost, but the per cent. which should be assigned to food, interest, labor and land. To give the average proportion of the cost of keeping a sheep for one year, which is due to interest or to wages in a State the size of Pennsylvania would be impossible. Even if practicable, such an average would be useless. A general statement or average is only valuable when individual instances will not in all likelihood vary from that average in any considerable degree. In dealing with cost and profit, I was therefore obliged to confine myself in many instances to parts of States, such as Western Massachusetts and Southern Wisconsin, etc.

THE RETURN FROM FIELD SHEEP.

Under this head, we shall first look at the return for Merinos, and then compare the result with the return for the English breeds.

The annual increase of the field Merino when kept under the present conditions is about 75 per cent. The loss of lambs and sheep is about 15 per cent. If you own one hundred ewes, sixty sheep can annually be sent to market without reducing the number of your flock. But to calculate the average return per sheep from the sale of mutton, we must remember that a flock is never composed entirely of ewes. The number of ewes and wethers born is about equal. Unless killed as lambs, these wethers are usually kept until they are two years old. Suppose a farmer has one hundred ewes, and does not care to increase or reduce his flock. At the end of each year he will have a flock of 220 animals, distributed as follows: One hundred ewes over two years old, thirty ewes and thirty wethers two years old,

and sixty lambs twelve months old. He can then send thirty of his old ewes and thirty wethers to the market. Not counting the lambs under a year old, his flock would always consist of 160 sheep, sixty of which, or 37½ per cent., are annually sold for mutton. The net return for mutton, over the expense of killing and shipping to the nearest market, will average about five cents per pound (live weight). The live weight of the Merino is about ninety pounds. Thus the annual return from the sale of mutton averages for every sheep in the flock $1.68¾. To this we must add 7½ pounds of wool at 26 cents per pound, or $1.95, which makes a gross total of $3.63¾. It may be interesting to compare this result with the probable result under free trade prices. Under free trade, the price of wool grown on fine Merinos would probably fall to 19 cents, the average price for such wool in London. This would reduce the gross return to $3.31¼. The gross profit of Southdown sheep to the average Eastern farmer is now somewhat more than from pure Merinos. The returns from the English animals may be estimated as follows:

4½ pounds of wool at 25 cents per pound	$1 12½
52.8 pounds of mutton at 5 cents per pound (44 per cent. of 120)	2 64
Total from Southdown	$3 76½
Total from Merinos	3 64
Difference	12½

In explanation of the large return from the sale of mutton, we must remember that the Down breeds are noted for their fecundity. An annual increase of 120 per cent. is not unusual. 44 per cent. of the flock annually sent to market is therefore rather an under than an over estimate. It may be asked why in comparing the gross profits of the two breeds, merino and Southdown, I have made a difference of only three

pounds in the weight of the wool, while in Table I the difference is given as four and one-half pounds? There I was comparing sheep kept by experienced breeders. In estimating the actual returns received by farmers, we must remember that it is much easier to raise an animal bearing a large quantity of good mutton than one bearing a large amount of fine wool. It is true that many merinos carry fleeces weighing fifteen pounds. These, however, are not owned by even "good average farmers," but by breeders. In discussing the present relative advantages of the different breeds of stock, we must deal with the ordinary man and the profit to him, not with the specialist.

RETURN FROM RANCH SHEEP.

The best ranch sheep, those of Montana, Oregon, etc., will clip 6¼ pounds of wool, which at 20 cents per pound is $1.25 per sheep. The poorest ranch sheep, those of New Mexico, 2½ pounds of wool, which will sell at the rate of 15 cents per pound. The return from the wool in New Mexico will therefore be 37½ cents.

The calculation of the return from mutton is, as in the case of field sheep, somewhat more difficult. The annual increase over the death rate for both lambs and sheep is about fifty per cent. of the number of ewes, in Montana, and forty per cent. in New Mexico. The profit per pound of mutton over the cost of transportation, is three and two cents, respectively. The average weight of the Montana sheep is fifty pounds; the weight of the sheep of New Mexico, forty pounds. Suppose we start with a flock of 1,000 ewes, and we do not desire to increase our flock; but, as wool is the chief object, we intend to keep our wethers until they are five years old; what proportion of our flock could we send annually to market, estimating the increase as in Montana at 50 per cent.? At the end of the first year we will have 1,000

ewes, and we will also have 500 lambs; at the end of the second year, 1500 sheep and 500 lambs. Fully one-half of the increase are wethers. Two hundred and fifty, or one-half the annual increase, are therefore all the ewes which can be killed in any one year. At the end of the fifth and each succeeding year, the flock will number 2,250, and 500 lambs. Of the sheep, 1,250 are ewes, and 1,000 are wethers; 250 of these latter, being five years old, are ready for the shambles. Each year, therefore, 500 sheep can be sent to market. This is 22 per cent. of the flock. As the average weight of a Montana sheep is fifty pounds, to calculate the average return per head, we can assume that each sheep yields 22 per cent. of fifty pounds, or eleven pounds of mutton annually. At three cents per pound, this makes the return from mutton thirty-three cents per year.

As a result of the above, in Montana, the credit side of the account would stand thus:

Wool, 6¼ pounds per sheep, at 20 cents per pound	$1 25
11 pounds of mutton per sheep (22 per cent of 50 lbs.) at 3 cents per pound	33
	$1 58

In New Mexico:

2½ pounds of wool per sheep at 15 cents per pound	37½
8 pounds of mutton per sheep (20 per cent. of 40 lbs.) at 2 cents per pound	16
	53½

These figures represent the gross profits on the best and meanest ranch animals, when no increase in numbers is desired. The duty on wool coming in competition with that from Montana is 10 cents; that on the clip of New Mexico, either five or ten cents, according to whether it would be classed as carpet or clothing

wool. But the fall in the prices of Montana and similar wool under free trade cannot be measured by the amount of the present duty. It would not be likely that the wool from Montana, for instance, would fall below fifteen cents, the average price for similar Australian and South American wools, and that grown in New Mexico would not fall below twelve cents, the price now paid for similar wools in the London markets.

The gross profit under free trade in wool therefore stands as follows:

Montana:

6¼ pounds of wool at 15 cents per pound	93¾
Return from mutton (unchanged)	33
	$1 26¾

New Mexico:

2½ pounds of wool at twelve cents per pound	30
Return for mutton (unchanged)	16
	46

RETURN FROM ROAMING OR SOUTHERN SHEEP.

To calculate the return from these sheep is very simple:

There are 2½ pounds of wool, which will sell at 22 cents per pound. This makes 55 cents. The wool, though little better than carpet, sells at a good figure on account of the slight shrinkage in scouring. This shrinkage is seldom more than 35 per cent. The return from mutton is so uncertain that it cannot be estimated with any pretension to accuracy. In Table V. we have placed it at 25 cents. The sheep belonging to the poor whites, however, are seldom sold for mutton.

COST OF RAISING FIELD SHEEP.

As before stated, a farmer in Pennsylvania, Ohio, New York or the East, seldom devotes himself exclu-

sively to sheep raising. This is due to the cost of land. Land in Pennsylvania, for instance, which will support six sheep to the acre, will cost about $55. Calculating the rent at 10 per cent., the usual rent for land where the landlord pays the taxes and keeps the fences in repair, this is already 92 cents, which is as much as the entire cost of raising sheep in Australia or South America. In New York, land which will support five and one-half sheep to an acre will cost $40. This is at the rate of 75 cents per sheep a year. The section of country comprising Southeastern Ohio, Washington county, Pennsylvania, and Northwestern West Virginia, is the centre of the fine-wool industry in the United States. Indeed, the finest wool in the world comes from this district. Even here, however, the farmer seldom devotes himself exclusively to raising sheep. Where no more sheep are kept on a farm than the land which must be allowed to lie fallow every year will support, or, to be more accurate, where the number of sheep is not sufficient to affect the production of agriculture, the item of land does not enter into the cost. On the other hand, where sheep raising is the sole pursuit, the entire cost of the land all falls on this industry. In this case its value will be regulated, as in Australia, by the number of sheep it can support. Between these two extremes are the cases where more land is left in pasturage than is necessary to rest the soil, yet the farmer by no means confines himself to stock-raising. Thus the item of land, in the cost of sheep, not only varies with the cost of the land and the number of sheep per acre, but also with the extent to which the raising of sheep interferes with the farmer's production in other directions. In the section of country above mentioned, and the same may be said of Central New York and Southern Wisconsin, many of the farmers keep a greater number of sheep than is sufficient to utilize

their waste and fallow lands. At the same time they do not confine themselves to sheep-raising. In all the other portions of our country, however, where field sheep are raised, we seldom find a farmer keeping enough sheep to interfere with his production of other crops and breeds of stock.

The last fact will explain what the reader has probably noticed, that sheep can still be raised in New Hampshire and Vermont, where the total cost appears to be greater than the return. If only a very few animals are kept the item of land need not be taken into consideration. But if the farmer increase his flock to such an extent that he is obliged to restrict his cultivation of other things, then the item of land begins to enter into the cost; while if he devotes himself exclusively to sheep-raising, the cost of land falls entirely on that industry, and the total cost of keeping sheep would equal the amount indicated in the diagram.

In the following table we have taken the average cost of land used for sheep-raising in the section indicated. In most of the States where field sheep are raised, the rental value of land appreciates much more rapidly than its value for grazing purposes. That is to say, the item of land in the cost of each sheep is much larger where the animals are placed on very fertile soil, than where they are run on poorer and cheaper land. The figures given below demonstrate the truth of this statement. Whatever may regulate the value of land in these States, it is certainly not the relative capacity for carrying sheep.

STATE.	Land that will bring	Will support to an acre.	Which is at a cost of
Vermont	$20.00 per acre.	3 sheep.	$0.67 per sheep.
New Hampshire	15.00 "	3 "	.50 "
Massachusetts, West	10.00 "	2 "	.50 "
" "	8.00 "	1⅔ "	.46 "
" "	40.00 "	5 "	.80 "
" "	100.00 "	8 "	1.25 "
New York	40.00 "	5½ "	.75 "
Delaware	50.00 "	6 "	.87 "
"	60.00 "	7 "	.86 "
Pennsylvania, West	55.00 "	6 "	.92 "
" "	75.00 "	7 "	1.20 "
West Virgina, North-western.	40.00 "	6 "	.67 "
Ohio, South-eastern	40.00 "	5½ "	.75 "
Illinois and Indiana	50.00 "	6 "	.87 "
Michigan, South	40.00 "	5 "	.80 "
Michigan, North	50.00 "	½ "	.10 "
Wisconsin, South	40.00 "	6 "	.65 "
Iowa	35.00 "	6 "	.58 "
Missouri, North	10.00 "	2 "	.50 "

The cost of raising field sheep depends on two other factors besides the cost of land, namely: the cost of feed and the cost of labor. An investigation into the first must necessarily be more accurate, and therefore more satisfactory, than any investigation into the cost of land. Every sheep requires three pounds of clover hay, or its equivalent, per day; or, to be more accurate, three pounds of clover hay for every one hundred pounds of live weight. Three pounds of clover hay is equivalent to four and one-half pounds of millet, ten and one-half pounds of sorghum, and fifteen pounds of prairie hay. To obtain the best results this dry fodder should be mixed with oats or corn, ensilage, beets, etc. It is practically impossible to give the equivalent of clover hay in oats or corn. Much depends upon the character of the result required. The price of the hay, however, forms a very fair basis for judging the cost of feeding. On the calculation of three pounds of clover hay per day,

hay being at ten dollars per ton of 2,000 pounds, the cost per sheep will be 45 cents per month. At nine dollars the cost per month will be 40½ cents, at seven dollars 31½ cents, at five dollars 22½ cents, and so on. The actual cost of clover hay, or its equivalent, varies from nine to ten dollars in Massachusetts to five and six dollars in Illinois, Wisconsin and Iowa. Prairie hay in Kansas is about two dollars per ton. The cost of food is the most important element in the question of the profitableness of field sheep. The cost of land can be eliminated by restricting the number of the sheep to those the farmer can raise on the land without affecting his production of other things; but the sheep must be fed.

The item of labor only enters into the cost of field sheep when enough are kept, say over one hundred, to necessitate the employment of an extra hand, either all the year, or at the lambing season. While the animals are in the field they require little or no care. In winter, when the sheep are housed, one man can attend to about five hundred. During the lambing season there should be one man to every one hundred ewes. Where sheep are kept on good-sized farms in connection with other stock, one man for two months to every one hundred sheep, will cover the cost of labor and shearing. Where flocks of less than a hundred are kept, no extra hands will have to be employed. In the East, when shearers are hired, shearing costs from six to ten cents per sheep. The proportion which the cost of labor bears to the total cost, as shown in the diagram, is based on the assumption that sheep are kept in connection with other stock, with but one extra hand to every hundred animals, for two months in the Spring. Where the number of the flock is under one hundred, the labor of caring for them is usually said to be more than compensated by the value of the manure. Except

in Ohio and Western Pennsylvania, the flocks rarely exceed fifty sheep, and even in this last section the average is below a hundred.

In order to estimate the total cost of keeping field sheep, to the items already discussed one must add interest on the investment. This has been calculated at six per cent. on three dollars per head, or eighteen cents per sheep a year. Three dollars is a low price for sheep in the East, if the animal is sold separately and is in good condition; but is probably all that could be obtained for an average flock if sold in one lot. The cost of the buildings is insignificant, and the interest on all permanent improvements, even when the most approved folds are built, will never amount to over five cents per sheep a year. When small flocks are kept they are housed in the main part of the barn, or in a shed which leans against a larger building.

As will be inferred from the above, the cost of keeping sheep per head varies with the proportion of the number of the sheep to the size of the farm. Flocks numbering less than one hundred, conducted in connection with other agricultural pursuits, are decidedly more profitable per sheep than when the industry is conducted on a larger scale. Thus in western Massachusetts if sheep-raising was made the sole industry, the cost per sheep would stand as follows:

Food for four months and a half	$2 02
Labor. One man at $17 per month for every 100 ewes. Board for two months at $6.00 per month	46
Land (2 sheep to an acre at the rent of $1.00 per acre)	50
Interest on the cost of buildings and other permanent improvements	05
Interest on value of the stock, calculated at six per cent. on $3 per sheep	18
Total	$3 21

The cost per sheep for flocks under one hundred sheep is:

Food as above	$2 02
Interest on value of sheep, as above	18
Total	$2 20

The cost where more sheep are raised than the farmer's waste and fallow land will support, raising sheep not being his sole occupation, varies between these two extremes. As a matter of fact, the farmer in all the Eastern, and even in States of the Ohio valley, except in a few localities, raises so few sheep that the items of land and labor seldom enter into the cost.

The diagram also indicates the effect of climate. In Vermont sheep have to be fed for six months and a half. The item of food amounts to $2.34 per sheep. In Kentucky, except possibly for one month in the year, the animals can find sufficient grass, and the cost of food seldom exceeds 36 cents.

COST OF RANCH SHEEP.

Ranch sheep raising is conducted by men who are devoting their whole energy to solving the problem of cheap wool. The estimates of the cost of raising sheep in Pennsylvania often vary from fifty to one hundred per cent., but in Montana and Texas the extreme estimates of ranchmen, in reply to my circular on the subject, did not differ twenty-five per cent. The item of land in many sections can be disregarded. The ownership of a small tract or water right will give the possessor a free range on Government lands. Of course, it cannot be laid down as a universal proposition that the item of land never enters into the cost. In Texas, for instance, many own or rent their land. The rent or cost, however, is still very low.

In the New England States food forms the bulk of the expense; among ranch sheep, except in the extreme Northwest, food does not enter into the cost at all. For instance, even in Colorado, in spite of the cold of the winter, the little hay which is given seldom amounts to more than three cents a head. Labor, therefore, and interest on the investment, are the chief items. The latter remains practically constant, but the former varies according to the character of the population. It may astonish one who imagines that labor in a new country is particularly mobile, to learn that for a herdsman in Montana the wages are from thirty to thirty-five dollars a month; in New Mexico, fifteen dollars; yet we do not observe a great exodus from the Territory to the State.

The cost of labor per sheep, exclusive of the cost of shearing and burring, varies from 15.42 cents in New Mexico, to 44.4 cents in Utah and Nevada. The small cost in the first-named Territory is due to the great size of the herds, and the low wages. With five thousand sheep in a band, two men to watch the band, and an overseer, for every four bands, who is only paid forty dollars a month, we have that combination of conditions under which sheep can be herded at the lowest cost.

Roughly speaking, there may be said to be two methods of herding sheep. First, you may divide your flock into bands, numbering fifteen hundred or two thousand each. Every two bands will require at least three men. You then superintend the business yourself, or hire a manager at fifteen hundred or three thousand dollars per year. Where you have 50,000 sheep, if you pay your manager $2,000, and his expenses are $500 more; he will only cost you at the rate of five cents a sheep. The wages and expenses of the herdsmen will average about $25 per month; $18 for wages,

and $7 for provisions. There will be about a thousand sheep to each man. This makes the item of labor 30 cents plus five cents, or thirty-five cents. The other method is to have one man, sometimes called an overseer, for every two, three, or four bands. The overseer is paid about as much again as the ordinary herdsmen. There are also one or two herdsmen to each band. If there is an overseer for every three bands, at the cost of fifty dollars per month, then on the basis of two thousand sheep to a band, our overseer will cost ten cents per head, or five cents more than by the other method. In Texas there is usually an overseer for every two bands, and fifteen or eighteen hundred sheep in a band. Larger herds when frightened become unmanageable. In fact, after one has improved the quality of his flock, he usually reduces the number to twelve hundred or a thousand. The coyote and other wild animals alone prevent sheep being run in much larger herds. If the danger from this source were removed, there is no reason why we should not have double the number in a band, thereby reducing the cost by almost as great an amount as the tariff enhances the price.

In Utah, on the ranch of Charles Crane, there is an overseer for every three bands, together with two men to each band of a thousand or fifteen hundred sheep. This makes the cost of labor forty-four cents, but the success of Mr. Crane proves that it is not always the cheapest methods of herding which are the most profitable. In Oregon and Washington, during the summer months, the sheep are taken on the ranch in bands numbering about two thousand. It is usual to have two men accompany a band. On the large ranches in Colorado, storemen, and also captains, are employed, or men who pass between the various bands and hunt for stray sheep, scattered by the storms or the coyote. As before stated, south of Colorado sheep are not fed.

Even in that State and Wyoming the cost of feeding amounts to little, though ranchmen are now considering the advisability of providing a greater quantity of fodder. The severe winter of Montana necessitates an outlay of twenty to fifty cents per head; the amount varying greatly with the severity of the season.

The item of interest on permanent improvements and on the value of sheep themselves forms an important part of the cost. A gentleman who has one hundred and twenty thousand sheep on a ranch in Colorado, claims that one hundred thousand dollars will cover the total cost of all improvements, such as wells, store-houses, houses, sheds and corrals. At 10 per cent. interest, this is at the rate of 8½ cents per sheep a year. The interest on the value of the sheep themselves I have taken as 6 per cent. on 60 per cent. of the nominal value of sound animals. As in the case of the field sheep, I consider that interest should be calculated on the price of an average flock, and not on the selling price of animals carefully selected and sold separately. Average sheep in good condition, sold in small lots, are worth $2.00 apiece in Utah, Arizona and New Mexico; $2.50 in Northern and Eastern Texas, and $3.00 in Oregon, Washington and Montana. The Interest, therefore, will be 7⅕, 9 and 9⅗ cents per sheep respectively. In calculating the total cost of ranch sheep, we must add to the items already discussed from 5 to 7 cents per sheep for shearing, and also from 5 to 10 cents more to cover all extras. Thus, in Montana the shearing will cost six cents, and the extras amount to about ten cents, while in Arizona shearing will be done for five cents, and the extras wlll not exceed eight cents. In the diagram we have included the cost of shearing and the extras in the item of labor.

One of the significant facts in connection with the cost of ranch sheep is the great difference between the

Northwest and the Southwest. Take Montana and New Mexico, for instance. Everything seems to be in favor of the wool grower in New Mexico. The wages are almost half, and the climate of Montana necessitates the employment of a larger number of men. As a result the item of labor amounts to twenty-six cents more in Montana. In New Mexico the sheep need never be fed; in Montana feed costs twenty-five cents, and should amount to one dollar if the animals were properly kept. In New Mexico shelter is not needed, in Montana shelter must be provided. In New Mexico the total cost is not over forty-five cents, in Montana it is between eighty cents and a dollar. One might imagine that men would never attempt to raise sheep in the latter State, or if they did, that the competition of such States as New Mexico would render any such attempt fruitless. Yet what are the facts? In 1883 there was scarcely a sheep in Montana. Now there are eight hundred thousand, and the number is constantly increasing. In New Mexico the number is the same now (1890) as in 1883. Besides this, it is claimed that the average New Mexican has not made money, while the efforts of the ranchmen of Montana have been almost uniformly successful. As was previously stated, one of the causes for this unlooked-for result is the difference in the character of the sheep; the fact that New Mexico has been the home of the Scrub, while Montana started with an improved animal. But the Scrub is not responsible for all the difference. The character of the people must also be taken into consideration. In New Mexico the care of sheep is left largely in the hands of half-breeds, and more or less degenerated Mexicans. Then, as in Texas, New Mexico has been over-run with inexperienced persons from other parts of the country, having a little capital and great expectations. On the

other hand, the success of the Montanians is due to their enterprise rather than to any favorable natural conditions.

THE COST OF SOUTHERN OR ROAMING SHEEP.

As before explained, the majority of the sheep in this section roam unattended over the waste lands. The total expense is in the catching, shearing and marking. To this we might possibly add the interest on the value of the animals themselves. The regular price is two dollars per head, whether the animals are sold separately or in lots; and one might almost add, whether in good or bad condition. With interest at seven per cent. this is only fourteen cents per sheep, which makes the total cost thirty-nine cents per year. No Southern farmer, however, would think of estimating interest as part of the cost, as the proceeds of the sale of his few sheep would not be sufficient to invest. If he parts with any of his flock, it is simply to eke out the slender living of the year.

Those sheep which are kept in enclosed fields in the South are but little more expensive than those which run on the free or waste lands. The sheep are never numerous enough to occupy fields which would otherwise be used for raising tobacco or cotton, and therefore the cost of land, as likewise the little cotton-seed meal which is occasionally fed to them, can be disregarded.

COST OF RAISING SHEEP IN AUSTRALIA.

Let us now turn from the conditions and cost of raising sheep in the United States to those in foreign countries. And especially let us look at the cost and conditions of raising sheep in Australia. This is the country in which the industry has made its greatest triumphs. What is the secret of its success? In order to answer this question or to appreciate any fact connected with

the industry in Australia, we must not only have a knowledge of the method of raising sheep, but also some insight into the land system.* Sheep in Australia, except in a few unimportant instances, are not herded. Ask a colonist how many attendants he requires, and he will reply that sheep have no attendants in our sense of the word. They are allowed to run in large fields or paddocks. The fences are usually of wire. There is great variety in the size of these paddocks. In some places they contain as many as thirty square miles, in others not more than two thousand acres. The larger paddocks are usually found where the grass is sparse. Near the coast the grasses being much heavier, on account of the more frequent rains, the paddocks are smaller, the best sheep being frequently changed from one to the other. Sheep farms are known as stations, or runs, though if one man owns a large run he may have two or more farms or stations, where the men live and where the supplies are kept. Thus the word station means either the buildings on a run, or the run itself. Though the governments of the colonies have made some attempt to limit the size and number of runs which may be owned by one person, nevertheless those who were early in the field have built up immense estates. Thus, S. McCaughey, of New South Wales, owns one million two hundred thousand sheep, which graze on three and one-half million acres of land. It is not unusual to find a man owning a flock of twenty thousand.

The rate of farm wages in Australia, $292 to $365 per annum, is not very different from the rate for similar labor in the United States, being somewhat more than in the southern or southeastern States, and somewhat less than in Montana and on the North Pacific coast. The secret of the low cost of sheep in Australia, there-

* See Appendix.

fore, is not the difference in the rate of wages; for that, as far as the employer is concerned, is often in favor of the United States. Is it then in their method of enclosing sheep in large fields? To answer this, let us investigate the outlay necessary to keep a definite number of sheep in Australia, under the paddock system, and compare the result with the cost of herding the same number of sheep in the United States. For this purpose we will take a flock of 20,000 fine Merinos. With us, these sheep would be divided into bands of twelve hundred each. I make the number twelve hundred instead of the usual fifteen hundred or two thousand, because I am comparing the finest sheep in both countries, and am supposing that the best care possible under a herding system is being given to the flock. For these twenty thousand sheep there will be twenty-five men, or an average of one man and a half to each band. Wages in northeast Texas, where the climate is not unlike Australia, are fifteen to eighteen dollars a month and board, which latter is calculated at from six to eight dollars. This makes the labor twenty-five dollars per month a man, or three hundred dollars a year. Seven thousand five hundred dollars is therefore the total cost of labor per annum for twenty thousand sheep; in other words, thirty-seven and one-half cents per head. The cost in Victoria, as elsewhere in Australia, or in this country, will vary greatly with the character of the run, and the carrying capacity of the land. Near the coast, on imported grasses, there will be as many as six or seven sheep to an acre. In the interior the number of sheep per acre rapidly decreases, while in the Mallee country, of which we shall have something to say in the Appendix, six, seven, and even ten or twelve acres, will be required to rear one sheep. For our comparison, let us take an average of one sheep to every two acres. I may state that, though in Victoria this average would be

considered as only fair land, in Western Australia it would be regarded as very good pasturage. In Queensland the average is somewhat higher than the figures we have taken.* To support twenty thousand sheep, forty thousand acres will be required. This we can divide into ten square paddocks of four thousand acres each. This enables the sheep to be changed from one paddock to another, thus utilizing the land to the best advantage. These paddocks will require upwards of sixty-seven and a half miles of fence, even when the boundaries are arranged in the most economical manner. Of course, a run owner can seldom build his paddocks so as to enclose the greatest number of acres with the least amount of wire. The land is usually surveyed by the government before purchase; though in some instances the boundaries of the run are selected by the purchaser. Even in this latter case, its general character is defined by certain rules. In New South Wales, for instance, the distance between the sides of the parallelograms and rectangles into which the land may be divided, must never be less than one-half the length of the longest side. Of course, the lessee or owner can always cut up the interior of his run into paddocks of the size and character he may prefer. The ten subdivisions into which we have divided the land are perhaps more than would be usual where only one sheep could be run to every two acres, and would indicate that the owner desired to improve the bearing capacity of the land.

*U. S. Consular Reports, No. 121, Oct., 1890, p. 256.

Colony.	No. of acres per sheep.	Colony.	No. of acres per sheep.
New South Wales. .	2.92	West Australia. . .	176.70
Victoria	2.01	Tasmania	5.23
Queensland.	6.75	New Zealand . . .	2.21
South Australia. . .	42.86		

For these sixty-seven and one-half miles of fence we must have three men known as boundary riders. A boundary rider is one whose duty it is to see that the fence is in order. In a flat country one man can take care of twenty-five to thirty miles of fence. The land in Australia, except near the southern and eastern coasts, is almost level, or only slightly undulatory. The boundary riders receive $291.99 per annum, and also their board. The board may be calculated, as indicated above, at seven dollars per month. Besides the boundary riders, four shepherds must be employed. The shepherds being men of more experience, are paid at the rate of $364.97 per annum. A cook, a storekeeper, and two general laborers, will complete the permanent force at the station. A superintendent, of course, will be necessary. The salaries of superintendents, however, ranging all the way from $1,000 per annum to an interest in the business, are as impossible to estimate as in America. In our comparison we have therefore omitted this item. The above is an over-estimate of the number of hands, for all colonies except Western Australia and Victoria. In the former some sheep are herded, the Chinese and aboriginal inhabitants being employed as laborers at very low rates of wages. In Victoria greater care is given to sheep than in any other colony, and consequently a greater number of hands are employed. In Queensland the average is one man to eight thousand sheep, or three men to twenty-four thousand sheep, excluding cooks, storekeepers and general laborers. The cost of labor in Australia for twenty thousand sheep will, as a result of the above, amount to $3667.07. This is 18.3 cents per sheep, against 37½ cents in the United States as a result of the herding process. The advantage of running sheep in large enclosed tracts is obvious. But the difference is even more striking if we reduce the calculation to Texas

wages. Ten men at a cost of $300 per year is only $3,000, or 15 cents per sheep. The true difference in favor of the Australian system is therefore $22.5 cents.

Of course, this advantage is somewhat modified, when we take into consideration the interest on the cost of the fences. The cost of fencing per sheep depends on the carrying capacity of the land. The expense which attends the erection of a three-strand barb wire fence in the United States is 51¼ cents per rod, divided as follows:

3¾ pounds of barb wire at 6 cents per pound	22.5
1 post at 20 cents	20.0
.5625 pounds of fence staples at 5 cents	2.8125
Labor	5.9375
Total	51.2500

The cost in Australia will not vary materially from these figures.

For sixty-seven and a half miles, the cost will amount to $11,070. Interest on all improvements on land should be calculated at 10 per cent., where the ordinary rate of interest is 6 to 8 per cent. The 10 per cent. covers the cost of repairing or the loss from deterioration. Ten per cent. on $11,070 makes $1,107 as the annual cost of a fence large enough to enclose twenty thousand sheep. This is at the rate of 5.535 cents per sheep. Adding the cost of fencing to the cost of labor, we have 20.535 cents as the cost of doing in Australia what it takes 37½ cents in the United States to accomplish. And remember, this is not due to the perennial climate of these colonies, nor to the low rate of wages, but simply to a difference in method.

The next two items of cost are strictly Australian. Unsettled land can rarely be bought outright for pastoral purposes. New land suitable for sheep-raising is usually leased from the government. In Victoria the

rent is based on the carrying capacity of the land. The price is one shilling per annum for each sheep which the land is capable of sustaining. This it somewhat higher than in the rest of Australia. Besides the rent of one shilling, permanent improvements to the value of 1s. 6d. or 39 cents per acre on land that will bear two sheep to the acre, have to be made by the lessee within three years from the commencement of the lease. These improvements consist in buildings, wells, etc. They also include fences, but as I desire to compare the paddock system with our own method of herding, I have treated the cost of fencing as a separate item. To the interest on improvements which is calculated at ten per cent., must be added the interest on the value of the stock itself. The value of sheep in Australia varies considerably. In periods of drought they have been known to be practically given away. The normal price is about two dollars per head. When the frozen meat trade is once firmly established, as it is in New Zealand, prices for mutton will be much steadier, though probably not a great deal higher than at present. I have placed the price of shearing as 4 1/5 cents per sheep. This covers the wages of the shearers, which are from 20 to 25 shillings per hundred, but a fraction more might possibly be added for board.

As a result of the above, the total expense per annum is found to be 71.2683 cents per sheep, or $14,254.37 for a flock of twenty thousand. There are many incidentals which are not included in this calculation, but it is believed that enough margin has been allowed on the different items, especially on the interest on permanent improvements, to cover all extras. The larger the flock the smaller the cost per sheep. It must also be remembered that we have based our calculations on sheep which receive the best possible care. On the other hand we have not included the cost of trans-

portation of the wool, which of course varies with the distance from the seaboard; and we have also omitted the cost of fine wool rams. Many of these latter are imported from Tasmania, California, or Vermont. On the whole, seventy-five cents will probably cover all the expense of raising the best sheep in Australia. As the estimate includes interest on all money invested, it indicates a rather higher cost than is often quoted by those who, when they speak of cost, mean simply the cost of labor. The statements I have made are based on the statistics of our Consuls, of the government officials in the colonies and of large owners and dealers. I have the satisfaction to know that the conclusion to which I have come concerning the total cost of Australian sheep is similar to that of Mr. W. G. Markham, who has spent some time in Australia investigating this subject.

On the opposite page is a condensed statement of the foregoing discussion.*

*Since these statistics were compiled, I have received the following from J. D. Connolly, our Consul in Auckland:

"I have endeavored to procure some reliable information in regard to the cost of wool-growing in New Zealand, which, I hope, may prove interesting to those engaged in similar occupations in the United States.

"The average cost per sheep a year to the breeders (all expenses) is about 60 cents. The average proportion of sheep to attendants is one attendant to every 5,000 sheep. The average wages paid to attendants is $4.86 per week and found. The average weight of a fleece is: Merinos, 5 pounds; cross-breds, 8 pounds. The average price that the breeders receive per pound of wool is from 10 to 23 cents in the grease—average, 17 cents per pound. The average size of a flock on stations is from 30,000 to 80,000, and in paddock farming (inclosed in fields) 200 to 3,000 sheep. Owing to the mildness of the climate, shelter beyond that which is furnished by hedges is not necessary. The character of their food is principally grass, except where sheep are being prepared for freezing and export to England, when they are fed on grass and turnips. The proportion of sheep and lambs lost annually from exposure is about 5 per cent. It is found that sheep

SUMMARY OF COST OF RAISING 20,000 SHEEP IN AUSTRALIA.

One sheep to every two acres.	Total cost per year for 20,000 sheep.	Cost per sheep per year.
3 boundary riders at $291.99 per annum	$875 97	$4.3798
4 shepherds at $364.97 per annum	1459 88	7.2994
1 cook at $243.30 per annum	243 30	1.2165
1 store-keeper at $194.64 per annum	194 64	.9732
2 laborers at $194.64 a year per man	389 28	1.9464
Food for 7 men at $6 per month	504 00	2.5200
Cost of shearing 4.2 cents per head	840 00	4.2000
Total cost of labor	$4507 07	22.5353
Interest on permanent improvements (10 per cent. on 36 cents per acre)	1440 00	7.2000
Interest on value of sheep (6 per cent, on $2.00 per head)	2400 00	12.0000
Interest on cost of fence	1107 00	5.5350
Total interest	$4947 00	24.7350
Cost of land	4800 00	24.0000
Total cost	$14254 07	71.2683

COMPARISON OF OUR OWN AND AUSTRALIAN METHODS.

	For 20,000.	For 1 sheep.
The total cost per annum of labor in Texas of herding fine sheep, on the basis of one man and a half to a band of 1200	$7500 00	37.5
Total cost of labor per annum in Australia for the same character of sheep at the same rate of wages.	3000 00	15.
Cost of fencing per annum in Australia	1107 00	5.535
Difference in favor of the Australian system	3912 37	16.965

imported into New Zealand improve very much, both in constitution and in quality. It is generally attributed to the uniform mildness of the climate. No other satisfactory answer to this question is obtainable, although I have made numerous inquiries amongst those who

As a result of this low cost and the great weight of the fleece, together with the fine character of the wool, the profits of a successful sheepman, or squatter, as he is usually called when he leases government lands, are not unfrequently very great. The weight of the Victorian fleece is something wonderful. A station, such as we have described, will average eight pounds per fleece. The price in London for fine Victorian wool is now 22 to 22½ cents per pound. This is higher than it has been for some time. A price of 23 cents means 20 cents on board a vessel in Australia, for from London quotations one must deduct freight and sale charges, which amount to over 1¼ cents, and also interest on the value of the wool during the voyage. Twenty cents per pound on an average of eight pounds is $1.60

are familiar with the subject, than that the land, grass, and climate are peculiarly adapted to sheep raising.

"The number of sheep exported last year with and without wool amounted to 1,964,281, valued at $553.040. Thirty-seven thousand eight hundred and twenty-six of the above number were shipped to the west coast of America (San Francisco) of the value of $5,055.

"The total value of wool exported from 1880 to 1889, inclusive, was $207,622,565. The wool export for 1880 was 66,860,150 pounds, valued at $17,473,450, whilst the returns for 1889 show the wool shipments to be 102,227,354 pounds ($28,037,005), an increase during the ten years of $10,563.550.

"I still entertain the opinion expressed in my report to the Department of January 27, 1890, viz, that American wool buyers could buy in this market and ship direct to New York or Boston much cheaper than they could buy in London. It is reasonable to presume that the London or middle-man's commission, together with the cost of transshipment from London to New York, would at least be saved. I am forced to this conclusion from the fact that many of the continental buyers find their way to these colonies during the wool season. If wool buyers on the Continent find it profitable to purchase their wool from first hands, then would not American manufacturers find it equally advantageous to pursue a similar course? The experiment seems worthy the consideration of those engaged in woolen manufactures." [Appeared in the U. S. Consular Reports, No. 121, Oct., 1890, pp. 347-8.]

per sheep, excluding the value of the increase and the return from the sale of mutton. Even when wool was at 16 cents in London and 14 cents in the colonies, the return from wool alone amounted to $1.12, and the price could probably fall to ten cents per pound without driving many of the present owners out of the business. Soon the Australians, by the extension of the frozen meat trade, will be able to obtain a steady market for their mutton. They will then turn themselves to solving the problem of breeding an animal which will at once be a good mutton and wool producer.

The paddock system is undoubtedly the chief feature in Australian success. But we would commit a grave error did we not recognize the part played by the land laws. Indeed, some knowledge of these laws is essential to an understanding of the present conditions of the industry in those colonies. Their chief object, as will be seen by a perusal of the note at the end of the book, is to force the settler, or squatter, to improve the land before he obtains a grant in fee simple. By this means they have insured the thorough settling of the country, and restricted the growth of that pest of civilization—the man who holds unimproved land, waiting for a rise in its value owing to the improvements of his neighbor.

I regret that it was impossible for me to examine more closely into the cost of sheep raising in other foreign countries. The information given in the table as to the average annual total cost per sheep, and the return from the sale of the clip, was furnished by the United States Consuls residing in the several countries. From the fact that all the questions which I addressed to our Consuls were answered in the most painstaking manner, I have every reason to believe in the accuracy of their statements. It is curious to note that only in Australia, South America and Natal, does the return for the wool exceed the total cost per sheep. This would seem to

indicate that the grower in other countries has other sources of revenue from his animals besides the fleece. This is the case. The Armenian, for instance, as I shall have occasion to point out again, turns the milk of his ewes into cheese, and sells as a great delicacy, the fat cut from the animals' broad flat tail.*

*I have also received the following account of sheep raising in Southern Russia:

"The average cost per sheep a year to the breeders (all expenses) is 2 rubles ($1.09).

"The average proportion of sheep to attendants is four attendants to every 1,200 sheep, viz., three men and a boy. Each man receives $50 a year, the boy $20. They are furnished with food and shelter and part of their clothes.

"The average weight of a fleece is 9 pounds.

"The average price which the breeders receive per pound of wool is from 10 to 12½ cents.

"The average size of a flock is about 1,200.

"The sheep are never placed under shelter for a longer period than three months—December, January and February.

"When under shelter the food consists of hay, straw, and occasionally a little salt, otherwise it is grass.

"From 5 to 10 per cent. of sheep are lost annually through disease, age, and neglect. The proportion of lambs is about 20 per cent.

"On the importation of sheep into the country the wool grows coarser and loses its grease.

"The change of climate and the change of nourishment is undoubtedly the cause of this change of fleece, as foreign sheep are usually fed on hay and barley." [Reported in U. S. Consular Reports, No. 117, p. 255, June, 1890.]

CHAPTER VII.

THE FUTURE OF THE INDUSTRY.

FROM the result of my investigation into the cost of raising sheep and the distribution of the industry, I am led to believe that the success of sheep raising in any section depends upon three factors: namely, the character of the people, the climate, and the method employed. The relative importance of these factors varies in different countries. In the United States at the present time the character of the people is a far more potent factor than climate. If we look on the Diagram in Table V in connection with the number of sheep in each State and Territory shown in Table III, we will see that there is little connection between the cost of raising sheep and the condition of the industry.

In Delaware, for instance, the annual return from raising sheep with proper management would be over 190 per cent. on the investment, yet there are only 22,000 sheep in that State, or one to every seven persons. We have already compared sheep raising in New Mexico and Montana. Montana is less favored by nature, but the industry is in a far better condition than in New Mexico. The South, however, is by far the most striking example of the effect of the character of the people. Within three hundred miles south of Philadelphia the actual cost of raising sheep is less than in Utah, Arizona, or New Mexico. Central Kentucky, Tennessee, western North Carolina, and Virginia, are places which nature seems to have especially prepared to be the home of the fine-wool sheep. These districts are well watered, have an equable climate, unrivalled pasturage, and cheap land. Nothing seems

to be desired; yet there is not any part of the United States where sheep culture is in a more deplorable condition. In Tennessee some farmers have a few miserable Scrub sheep, to which they give little or no thought. In Kentucky and Virginia the industry is only in a slightly better condition. The trouble is with the people, not with nature. Sheep could not be raised in the best portions of Australia, by the present population of many of the Southern States. I have spoken of the ravages of dogs, and of the impossibility of raising sheep in a country overrun with an animal like the Southern cur; but at the same time we found that the cur is the result of bad social conditions, which foster a spirit of shiftlessness. Energy and thrift must be infused into the people before we can hope that they can deal with the dog problem. Character and social conditions, however, are subject to change, while physical conditions are comparatively permanent. With every improvement in the condition of the South, the energy of the people of the Northern States will be less distinctively characteristic, and the physical differences between these two sections of our country will come more prominently into play. This fact must be borne in mind in any speculation as to the future of the industry. And in comparing the relative influence of social and physical causes on the future development of wool-growing, we must also remember the differences between raising sheep on a large and on a small scale. The former will always be conducted in the parts of our country which are comparatively thinly settled, and where consequently land can be obtained for a moderate sum. When a district is thickly populated, each acre must be put to its best possible use, which usually implies a careful rotation of crops and stock. Under these last conditions more depends on the efficiency of labor, and less on the bounty of

nature. Thus physical conditions play a more important part when large bodies of sheep are raised, than when there is a dispersion of small flocks among a farming population. For instance, if we wish to establish sheep raising in the South it will be much easier for northern companies to buy large farms and clear the country of dogs, than directly to disperse among the present population good breeds of sheep.

If we are ever to have large flocks of fine-wool animals in this country, or produce the wool necessary for our own consumption, it must be by developing the industry in those sections where the physical conditions make it possible to raise sheep in large bodies at a low cost. In seeking the parts of our country where, if once established, the industry would have the greatest development, we must look more at the climate and soil, than at the present social condition of the people. For all that has been said concerning the fineness of the clip of the Northwest, does not render any less true the proposition that the sections of our country possessing an equable climate must ultimately contain the majority of the large flocks of fine-wool sheep. The climate is the true test of what the expense of feeding ought to be. Thus in Colorado, Utah, Wyoming, and Nevada, the cost of feeding sheep, though practically nothing, is so only at the expense of a heavy annual loss, sometimes amounting to fifty per cent., of lambs and sheep, and a great deteriation in the quantity and quality of the fleece. The mean annual temperatures given below, together with the mean temperatures of the coldest months, and the average number of sheep and lambs annually lost from exposure, will give us a general idea of the climate in the different States of the West.

	Mean temp. of the coldest month in 1887.	Mean temp. in 1887.	Average per cent. of lambs lost through exposure and poor feeding.	Average per cent. of sheep lost through exposure and poor feeding.
Fort Randall, South Dakota . . .	—8.6°	37.2°	10%	2%
Fort A. Lincoln, North Dakota .	—10.	45.	15	10
Fort Keogh, Montana	8.6	42.9	15	10
Fort Hays, West Kansas	23.	51.4	20	10
Fort Sidney, West Nebraska . .	23.4	47.6	20	10
Colorado Springs, Colorado . . .	29.9	. . . .	30	20
Laramie Fort, Wyoming	24.4	47.8	30	25
Boise City, Idaho	36.	53.1	20	8
Ogden, North Utah	34.	54.3	50	8
Carlin, North Nevada	38.4	48.9	50	8
Maricopa, South Arizona	51.2	74.2	20	5
Shelden Fort, New Mexico . . .	43.1	62.5	25	10
Modesto, California	53.4	72.1	20	5
Gala, Oregon (Valley)	46.6	63.5	22	5
Fort Kalmath, Oregon	41.	50.	15	5
Walla Walla Fort, Washington .	41.5	52.8	20	5

The uncertainty of the climate in a great part of the West, not its severity, is the principal drawback. This is true of places as far south as Northern Texas, for instance. Usually the temperature of the Willamette Valley, Oregon, is one almost perfect for producing fine wool; but even here there are occasioual storms, and some food and shelter ought to be provided. In many parts of the West a blizzard may carry off half of the flock on one night, while the rest of the year, or for many years, shelter may be entirely unnecessary. The average annual loss of lambs and sheep taken from estimates of ranchmen near the places whose temperature is given in the table is a good illustration of what I mean. The coldest climate does not coincide with the greatest death-rate from exposure. In Montana the ranchman, counting on bitterly cold weather, is prepared for it when it comes; but in sections like Southern Kansas,

Colorado and Utah, where the climate is uncertain, only shelter of the most wretched sort, if any, is provided. It is in these last States therefore that the greatest losses from exposure occur. While the climate of the Central Northwest is too cold, the climate of Southern Texas, New Mexico and Arizona is too warm. The fleece tends to grow lighter in weight, for nature throws off that which is superfluous.

The soil and the rainfall are other important factors in determining the value of any section as a grazing country. In order that fine wool may be grown successfully, the soil on which the sheep run must not be of such a character that the wool will be filled with sand, which not only weights the fleece, but cuts the fibre. This fact makes the Gulf coast, which has an excellent climate, unsuited for growing fine wool. In Southern Georgia and Northern Florida, besides the sand itself, sand-burrs become entangled in the wool and adversely effect the condition of the fleece. The trouble with sand exists not only on the western Atlantic and Gulf Coast, but wherever there is a sandy soil and a scarcity of vegetation. The grass is sparse throughout the greater part of Southern and Western Texas, New Mexico, Arizona, Utah and Nevada. In many districts in these States the approach of a band of sheep is indicated by the great cloud of dust. The thinness of the grass, to which is due the prevalence of the sand, also proves that the sheep have insufficient nourishment, which in itself is enough to injure the condition of the fleece. We can never hope to permanently establish the fine-wool industry on a large scale in those parts of our country where the soil or rainfall render the food scarce or uncertain, and where the fleece is filled with sand, though these sections may always produce considerable medium, or even fine-staple wool.

The necessity of having soil somewhat more fertile

than a desert is seen even more clearly when we consider the proper method of raising sheep. In examining wool growing in Australia we found that the true cause of the low cost of production, is not so much the climate of that country, as the land laws and the custom of raising sheep in enclosed fields. It is not practical for us, at this late stage of our national history, to adopt the principal points of their land system. The younger nations have profited by our irretrievable mistakes. It is still, however, easy for us to adopt the paddock. The moment we change our ideas as to the proper method of raising sheep in large flocks—and change we must if we are ever going to make a success of the fine-wool industry in this country—a considerable modification will take place in our ideas as to the best place to run them. It is cheaper to herd sheep where the land itself costs nothing; for it requires almost as many men to watch the sheep on land carrying two sheep to an acre, as on land which will not carry one sheep to every five acres. Little is gained therefore by herding sheep on expensive land. But with the paddock system, the cost of the fence must be taken into consideration. The cheapest land ceases to be the most profitable land on which sheep can be raised. In Australia the best paying animals are run on land which rents at over fifteen cents a year per sheep. There are plenty of desert lands in the interior, but nobody thinks of utilizing them. In Idaho, on the other hand, sheep are often driven one hundred and fifty miles in a year in search of pasturage, and a flock seldom remains more than two days at the same camp. To enclose such a tract would be impossible. If I am right in saying that the adoption of the paddock system is essential for the permanent success of wool growing on a large scale in our country, then only those districts which combine an equable climate and good pasturage can hope to become the home of the fine-wool

industry. Unfortunately for the interests of wool growing in the United States, on many Western ranches we are attempting to raise sheep in the wrong places, and in the wrong way. Southern California, parts of Texas and Oregon, are practically the only sections where fine wool is raised to any considerable extent, which are adapted to the industry. As before intimated the natural advantages are all in favor of the Old South. Western North Carolina, Tennessee and Kentucky have climates which will rival that of Australia. The mean temperature of Central Tennessee is 60°; that of Melbourne, Victoria, 57.5°; while as in Australia there is no time of the year when the sheep require to be fed or housed, and unlike Australia there is no danger of drought. Land is cheaper on the average than in Victoria; grass is plenty and markets for wool lie within hundreds instead of thousands of miles. Social conditions are at present a strong, almost insurmountable, obstacle. But the South is awakening. Its natural resources are being developed, and we believe that if the condition of the wool market remains favorable, its great advantages in respect to sheep raising will be realized, and we shall witness the formation of companies for the purpose of prosecuting the industry on an extended scale.

Cause and effect in the social and economic development of any country react on one another to such extent that it is often impossible to separate the one from the other. Immigration to the South will lead to the establishment of many industries; but the industries in their turn will transform the character of the people, and make the slovenly and shiftless enterprising and industrious. The more successful the industry, the greater is its effect on the moral and social conditions of society, and in agriculture the successful industries will be those for which the soil and climate are especially fitted. We should therefore seek to develop each section along

those lines laid down by nature. The South being especially adapted to sheep raising, no industry has a better chance of success, and consequently no industry can confer greater benefits on the people.

The raising of large flocks in the Southern States is by no means inimical to the increase in the number of small flocks kept by farmers. In examining the cost of keeping field sheep, we saw that the chief differences in the cost of production arose from the number of sheep raised by any farmer in relation to the size of his farm, and from the climate. Where very few sheep are raised, only the cost of feeding and interest on the value of the animals need be taken into consideration. The establishment of sheep farms in the Northern States, and indeed in any portion of our country where the sheep have to be fed, is not the least expensive method of raising these animals, and therefore would not be advisable. By this I do not mean to infer that each farmer should keep only a few sheep, or confine himself to the number which his waste land can support. An industry which is conducted solely on land for which there is no other use will never amount to a great deal. Raising sheep to clear land of briars will produce neither good mutton nor fine wool. An industry begins to be truly beneficial to a country and an aid to its development only when a good commodity is produced. In New Jersey the farmers raise sheep to clear the land of briars, and the industry confers but a limited advantage on the community. In Ohio they raise sheep for wool and mutton, and the industry adds millions to the wealth of that State. What our farmers want is to add a new industry to those they already possess; not on the one hand to devote themselves exclusively to sheep raising, nor on the other hand to raise in a half-hearted way a few nondescript animals. It would, however, as in the case of any other industry, be worse than useless to encourage

sheep raising in places totally unfitted for its development. Feeding so materially affects the cost that we can never hope for any great increase, except possibly on stock farms, in those sections of our country where the animals have to be fed over four months and a half. On the other hand, in the parts of our country where the winters are comparatively short, the feeding, though necessarily expensive, does not add as much to the cost as might be supposed. The farmer must look to the mutton as well as to the wool for his return, and the best mutton returns are only obtained when the sheep are fed to a considerable extent. The belt of country east of the Rockies lying between the thirty-eighth and forty-second parallel is well calculated for raising sheep in small flocks. Southern New England is also suited to this purpose on account of the close proximity of large markets.

And here we may point out that the broken undulating country along the Ohio, mentioned in the second chapter, as well as the land in western Massachusetts and northern New York, also sections where agriculture is not in as favorable condition as might be desired, are at the same time excellent sheep districts. Indeed, we will seldom find better grazing country than in southern Ohio, Indiana, and Illinois. The climate, though the sheep have to be housed for a short time in the winter, resembles that of northern Kentucky, rather than that of the central and northern portions of the Lower Lake regions. The blue grass is a native of the soil. The sheep being well suited to the higher ground, if they increase in numbers, will utilize the very land which is now unsuccessfully devoted to wheat. In fact, the whole belt I have spoken of as best suited for the development of the field sheep, coincides very closely with those districts where there exists the greatest agricultural depression. The district along the Ohio we have alrea

tioned; southern central Pennsylvania, southern New England, eastern Kansas, are all places in which the natural possibilities for extending the industry are good, and where at the same time the condition of agriculture is not as favorable as it might be.

But there is another advantage which will spring from the general introduction of the industry among the farmers. Sheep require a great deal of intelligence on the part of those who raise them. There is no occupation in which farmers can engage where superior intelligence lends such a distinct advantage. At the same time, throughout a large part of our country there exists a marked tendency for the brightest boys to drift toward the large cities. This is due to a variety of complicated causes many of which we need not enter into here. But the chief cause will, we believe, be found in the fact that, though in the city the boys will be required to work harder, there is a greater chance for them to acquire a larger income. As a result of this tendency for the brighter boys to drift toward the city, in many sections of our country agricultural production is not carried on by as intelligent a class as it would be if it were possible for the farmer, by producing a greater variety of crops and stock, to make his income greater than it is at present. Thus an agricultural industry which was especially profitable to the intelligent farmer would lead many a boy who now drifts toward the cities, to remain on the farm and use his intelligence, not only in the production of wool and mutton, but also in the production of other agricultural commodities.

We can, therefore, answer in the affirmative the question whether an increase in the production of wool and mutton will relieve the farmer in those parts of our country where the establishment of a new industry seems to be the only way in which to counteract the depression resulting from the present tendency to the

over-production of the staple crops. The natural development of the industry, by which I mean its increase in those sections which by nature have been fitted for it, will confer a great benefit on our country. And in helping to establish it we are conforming to the rule which is the true key of national prosperity; namely, to develop our resources along those lines which nature has prescribed. By this I do not mean to grow tobacco in one section, corn in another, wheat in a third, and sheep in a fourth, but rather to develop all the varied resources of the different parts of our country, without forcing the cultivation of any commodity in a district which is unfitted for its production.

The benefits of an increase in the industry being manifest, is it necessary for our Government to do anything in order to insure this increase? For we must recognize that the time for abstract discussion of the proper sphere of government has long passed. At the present day we deal with facts. We want to increase an industry which will be of great advantage to the people. If Government protection and direction are necessary to this end, then protection and direction are legitimate spheres of governmental activity.

The cur, though a great obstacle to the successful prosecution of the industry in the East and South, can at present only be directly dealt with by the States. As we have pointed out, the prevalence of the evil is largely the result of the character of the people. In the South the cur can only be exterminated by those who undertake to grow sheep on a large scale. Like Mr. Polk Prince, of Kentucky, having established their sheep farm, they will, in defence of their property, effectually settle the dog nuisance. In the North the dog pest, though a formidable evil, has by no means reached such magnitude as in the Southern States. When we can demonstrate to the farmers as a class that

sheep raising can be made to pay, their own interest will lead them individually and through the State Legislatures to abolish the evil. The coyotes, foxes, wolves and the panthers of the West, however, are not the result of the character of the population, and yet in many States they form an insurmountable barrier to the adoption of the paddock system. The State governments and individual enterprise do not seem able to cope with the evil, and it is therefore proper that the Federal Government should lend its assistance.

We have seen that among the farmers of the East the lack of sheep suited to their conditions is the main cause of the decline of the industry. The future success of the field sheep depends largely on the diffusion of the proper breeds among small farmers. I have shown that the establishment of stock farms to supply our farmers with good rams at moderate prices is necessary to this end. We have already established Agricultural Experiment Stations. This is a step in the right direction, but we should realize that our whole duty toward the agricultural portion of our population is not done when we distribute seeds and analyze manures.

By a suitable breed of sheep for the Eastern farmer, I mean sheep in which mutton will be the first consideration. I do not, however, wish to be understood as advocating a total disregard of the character of the wool. Thus the Cotswold, Leicester, and other sheep, bearing long combing wools, for which there is little or no demand, should not be introduced. The Shropshire and Down breeds are more nearly in accord with our conditions; besides yielding the best mutton, they produce wool for which there is a steady demand. Then too, in any improvement in our Eastern sheep, the Delaine Merinos should not be overlooked. As before explained, these sheep grow a fine fibre of three to four

inches in length. Owing to improvements in combing, the wool is admirably adapted to making fine worsteds. The varieties of Delaine wool grown in Pennsylvania, New York and Ohio, are peculiar to America. The Delaine sheep is somewhat larger than the ordinary Merino, and takes on fat more easily. Thus the varieties of Delaine Merino, such as the Dickinson and Black-top, are much nearer our American conditions than any other breeds we have produced. On the other hand, an increase of the quantity and quality of mutton is to be desired. It would therefore appear that the suitable sheep for the East lies somewhere between the Delaine and the Down. Both these approach what should be our standard of excellence, the one giving prominence to the wool, and the other to the mutton, while at the same time neither is a poor mutton or wool-bearing animal.

Having seen that the introduction of the proper breeds of sheep, as also the extermination of wild animals, are two things which can be said to be practically essential in order to establish the industry in this country on a proper basis, let us now turn to the more important question of the tariff. For though we have shown that the benefits to be derived from the increase in the number of sheep far outweigh any sacrifice which is implied in a tariff on wool, we have yet to decide whether a tariff is necessary to increase such production. If we look at Table V. the first fact that strikes us is the general profitableness of the industry, even under free trade prices. Our investigation proves that it is possible to raise wool and mutton in the United States as cheaply as in any country in the world. This indicates that permanent protection will be unnecessary, but it does not show that temporary protection is useless, or even that it may not be indispensable to the future prosperity of the industry. I use the words

temporary and permanent in the sense explained in the first chapter.

In studying the profits of sheep raising as shown by the table, certain other facts must also be taken into consideration. The column indicating the return from mutton is necessarily based on the assumption that there is a steady demand for that meat. This cannot be said to be strictly the case. The people of the United States have not, as a nation, a strongly developed desire for mutton. The demand is fluctuating. Even after the sheep arrive at the market, they may sometimes have to be disposed of for next to nothing. True, we consume yearly about 325,000,000 pounds of mutton, but then it should be remembered that we also consume about 3,570,000,000 pounds of beef, a proportion of 1:10.9+. The English, on the other hand, consume about 875,000,000 of mutton and 1,554,000,000 pounds of beef, a proportion of 1:1.8.

In America, outside of the cities, there is no demand for mutton. Farmers, as a rule, prefer pork. Even in the cities it is the testimony of hotel and restaurant keepers, that while they always know about how much beef their patrons are going to eat, the amount of mutton is an uncertain quantity. The taste, too, for beef is universal, but you seldom find a dozen persons who all like mutton. As a consequence, the principal roast of all large dinners must be composed of beef. "People complain of the eternal fillet," remarked one of the most celebrated caterers of the United States, "but when they are given mutton there is much more dissatisfaction."

The cause for our uncertain and comparatively slight demand for the meat of the sheep is largely due to the fact that the average mutton which comes even into our highest-priced markets is far from being of the best possible quality. As for the cheap western mutton in

the Chicago market, it is coarse-grained and stringy. The prejudice which exists against this article of diet is thus, to a certain extent, well founded, and will only be eradicated by the supply of a better quality of meat. The classes of society in our large cities who have now an opportunity of eating good mutton and lamb, are rapidly losing their exclusive desire for beef. A strong taste for pork characterizes the great bodies of our farming population. A good example of how a desire for mutton, or in fact for any new article of diet, can be introduced, is found in Oregon and Washington. I will let one of my correspondents, Mr. V. H. Lamara, of Ritsville, Washington, tell the story. He says: "I think I can tell why mutton is much higher here than it used to be. In the years 1877, 1878 and 1879, mutton sheep were very low, from $1.00 to $1.25 per head, and a great many sheep were bought up and driven east to the border States, fed through the winter, and put on the Chicago and other markets in the spring. Beef had been very low for a series of years. People were educated to eat our bunch-grass beef. Every body said it was the finest in the world, and like Johnnie Bull, we became a nation of beef-eaters. There existed a strong prejudice against mutton, which was inherited from the eastern immigrants. But a change came over the spirit of our dreams. Beef commenced going up after the hard winter of 1880–81, and finally culminated in such high figures in 1883–84, that people began to seek cheaper meat, and it was then that mutton gradually came into use. The people found it so much better than they expected, that it has come to be generally eaten, and now the demand is greater than the supply." A distinct advantage arising from the increased production of unimproved sheep, and their distribution among the farmers, is that the people will then be supplied with better mutton, thereby largely increasing the con-

sumption of that meat, and consequently increasing the demand for sheep.

The benefits of increasing the kinds of meat or vegetables which a people are willing to consume, can hardly be over-estimated. Not only is it apt to lead to a better use of land, but it minimizes the power for evil which those who gain control of any industry may possess. If with every slight increase in the price of beef, for instance, the people would considerably increase their consumption of mutton, no combination of producers or slaughterers of beef, however rich and powerful they might be, could greatly increase the price with profit to themselves. The Standard Oil Company is the strongest monopoly we have, yet it has had to decrease the price of oil to the consumer; for, unless the price of oil is low in comparison with gas, the people will greatly reduce their consumption of oil. In other words, when the people can satisfy a desire for meat or light by any one of several commodities, it is impossible to greatly increase the price of any of them.

But whatever the benefits which would result from an increase in our desire for mutton, we must recognize that at present this desire among the mass of our people is to a large extent undeveloped; and to deal with the question of profits on sheep to-day, the uncertain demand for the meat must be taken into consideration.

We must also remember that the Western ranchman lives in constant fear that his stock will be swept away by a blizzard or scattered by coyotes. To be sure, not over five per cent. of the sheep in Texas are lost by exposure, but this loss is not distributed equally. If one could calculate on a regular annual loss of twenty per cent. it would not have as bad an effect on the industry as this liability, though comparatively slight, to total ruin. It may be objected to this last statement that I have admitted that sheep should not be raised in dis-

tricts subject to blizzards. True, but we shall never establish the industry in the right way by destroying that which we have already accomplished. Even under the most favorable conditions, it will take many years before we can develop the industry on a large scale in those sections suited for its future growth. As such States as Montana become more populous, the inhabitants will drift from sheep raising into other pursuits. It will be a natural and therefore an easy transition. It is better to allow the temporary continuation of an industry in places unsuited for its future development than to throw a large class of our fellow-citizens into bankruptcy. Finally, we must also bear in mind that sheep raising with us is virtually in the position of a new industry. Among other things, we want to change the whole method of raising sheep in large flocks, introduce new breeds among our farmers, and greatly increase the number of sheep.

To induce any one to undertake raising wool or mutton on a permanent and extensive scale, the prospect of large profits must be held out to them. A person might enter into a well-established industry on the hope of a moderate return, but the return must be considerably larger to lead him to experiment in a new field of labor. Then, too, the small Eastern farmer has forgotten how to raise sheep. Just as the farmers in Southern Pennsylvania are possessed with the idea that Delaware is the only spot in the United States where peaches can be grown, so many farmers in the East are filled with the notion that sheep cannot be raised with a profit; that it was something their fathers did when the country was new, but now, when the land is more or less thickly populated, sheep raising must move farther west. One of the difficulties in starting an industry arises from the fact that the cost to the persons brought up in the business is not the cost to beginners. To the

latter it must, from the nature of the case, be more expensive. This is especially true of raising animals requiring such intelligent care as sheep. A striking example of the truth of this is seen by a comparison of the profits of sheep raising in England and in Pennsylvania. In England the sheep cost about $2.25 per annum, while the gross profit from the wool is 90 cents, and from the mutton $1.80. The net profit is therefore 45 cents, as against $1.13¾ in Pennsylvania. Yet there are comparatively few mutton sheep in Pennsylvania, and over twenty million in Great Britain. The Englishman understands sheep. He is sure of a steady though small profit. In America sheep raising to many of our farmers is in the experimental stage. We also want the number of sheep in this country to increase. The profits from the sale of mutton estimated in Table No. V. are based on the assumption that all animals which can be spared, without permanently reducing the number of the flock, are sent to the shambles. If we wish to establish this industry we must not only insure to the beginner a profit when his flock is stationary, but also when there is an annual increase. As is shown in our diagram, in the greater part of our country the return from wool under free trade would not amount to the cost of raising the sheep; but if we are to expect our flocks to increase, we must practically place the wool-grower above the necessity of sending any of his ewes to market to make both ends of his account meet.

Thus, though the facts concerning the cost of raising sheep in the United States undoubtedly prove that a tariff will be unnecessary when once the industry is firmly established on a proper basis, yet at present the margin of profit under free-trade prices would be too narrow to give sufficient encouragement to the farmers to increase their flocks or to the ranchmen to invest the large amount of capital necessary to buy grazing land

and build large paddocks. At the same time, any further increase in the tariff is unnecessary. It is part of our present policy to greatly add to the number and extent of our woolen factories. Even the present consumption of our mills necessitates an importation of fully 70,000,000 pounds of scoured raw wool annually. It will therefore be a number of years before we can hope to begin to supply the home demand for raw wool. To increase the duty on wool beyond the point necessary to attract investment would be to hurt our manufacturers, without conferring any corresponding advantage on the country. The changes in the rates on raw wool introduced by the McKinley bill were the subject of a good deal of criticism, for which there was little foundation. The changes from ten to eleven cents per pound on clothing wool and from ten to twelve cents per pound on combing wool were so small as to be of little moment. The other changes in the tariff of 1890, and those which are of the greatest importance, are in the classification of waste, and the change from specific to ad valorem duties on wools of the third class. As I have shown in Chapter V., these changes were rendered necessary by the evasions practiced under the Act of 1883, and they all tend to insure that wool shall be assessed according to its character.

Of course no tariff bill dealing with such a varied product as wool is absolutely perfect. This much, however, I think both free trader and protectionist must admit, that the classification and arrangement of the new duties on raw wool, waste, shoddy and rags, are more scientific than any we have hitherto had from Congress. There is one class of wools which we might have preferred to have seen placed on the free list. As has been stated, we produce but a limited quantity of wool suitable for carpets. To protect this wool seems only to retard the increase of fine-wool sheep. The

tariff on the coarse carpet wool is, therefore, a premium on keeping the wool of our own flocks coarse, when fine wool could be grown at no greater expense, except in the first cost of rams. For it is just as cheap to raise sheep bearing medium clothing wool, or fine wool, as to raise those bearing the coarsest fleeces. The coarsest wools in our markets come from Turkey and Russia, yet the sheep of those countries cost their owner as much to raise as the finest animals in Australia. Fine wool is dearer than coarse, first, because those who possess the requisite intelligence to raise sheep bearing fine wool have, in one sense, a monoply. The inhabitants of Asia Minor, for instance, cannot raise fine wool, no matter how high the price held out to them. The wool from the eastern Mediterranean is coarse because the people are ignorant, not because fine wool would be more expensive. Then, the Armenians depend for their return more on the milk of the ewes, which they make into cheese, and on the carcass and pelt, or hide, than on the clip. They can, therefore, afford to sell the wool at a low figure. At the same time it would be inconsistent to tax fine wool at eleven cents per pound, and admit it free of duty when mixed with carpet wool, and as we have seen, nearly all carpet wool when in the dirt is mixed with finer staples. This fine wool is often sorted out before scouring, and used in cloths. The separation of the long and coarse from the short fine staple could be performed in England, or other country of immediate shipment. The coarse wool or carpet wool proper might then be admitted free of duty, while carpet wool mixed with fine fibres could be placed under Class I or II. With this exception, we are happy to think that the rates of duty in our present tariff are as good as could have been devised.

The people, through their federal govennment, have taken one step in the right direction; they have given

the industry protection. The trouble is that they now seem to be inclined to do as they have always done; let the industry grow as best it may, without attempting to rid the plains of wild animals, or to diffuse among the farmers a breed of sheep suited to their conditions, and to investigate the cheapest methods of growing wool. Let us continue our policy of protection, and to this policy couple these other aids to the production of fine wool and good mutton, and I see no reason why we cannot make the sheep industry of the United States the admiration of the world, and an inestimable benefit, not only to our farmers, but to the whole country.

The continuation of our present policy of protection to the industry appears advisable. It is in its nature temporary protection. By this, as before explained, I mean that when once the industry is firmly established along the right lines, a tariff will become unnecessary. How long this will take, however, depends very much on the future action of the government in other directions, and the improvement in the social condition of the South.

This brings me to the end of my investigation. When I began I had only a general knowledge of economic theory. The advisability of protecting wool I believed depended upon circumstances. We have taken the facts connected with the industry, and discussed them in connection with our foreign trade. The result may be stated somewhat as follows:

A.—A temporary duty on wool, provided our Government assists the farmers to introduce the proper kinds of breeds, and the proper method of raising sheep on a large scale is adopted, will enable us to make a large increase in our production of wool, and ultimately so decrease the cost of raising sheep that a duty will be no longer be necessary.

B.—By temporarily paying higher for our wool, we

cannot indeed hope for an immediate fall in the price of wheat or corn; but a duty on raw wool, giving the farmer one more agricultural industry, making agriculture so much more stable and less likely to be injuriously affected by temporary fluctuations in the prices of one or two commodities, will tend to reduce not only the prices of these necessaries, but also of many other agricultural commodities.

C.—The tariff on wool, putting one more obstacle in the way of our adopting the fashions in dress from countries where the climate and other physical conditions are different from our own, and increasing our desire for mutton, will tend to place our people in a position to adapt themselves with less friction than at present to our own physical and climatic conditions.

D.—By increasing the advantage which the intelligent farmer has over his less intelligent competitor, the duty will tend to increase the amount and diminish the cost of all agricultural production.

In the first chapter four ways were indicated in which we might possibly be benefited by a tariff on wool. An investigation of the facts concerning the industry has shown us that such a tariff can be advocated because it acts not only in one, but in all of these four ways. The compensation we receive for paying higher for our wool comes, and will continue to come, from many and not from one source. Indeed, this statement is likewise true of nearly every economic change such as is implied in the act of imposing or repealing a duty. The result is always complicated. We cannot take one effect and conclude from its examination that the change is advisable or the reverse. Its wisdom depends rather on the preponderance of the good. That every consequence of a tariff on raw wool is beneficial no one would care to contend. What I have tried to show is that its general tendency is to increase the productive power of the nation, and consequently to improve the condition of the people.

APPENDIX.

ON THE LAND LAWS OF AUSTRALIA.

ONE of the best features of the land laws of the Australian colonies, is the almost universal recognition of the principle that the purchaser must improve the land, before he obtains from the Crown a grant in fee simple. The Crown lands are usually divided into town (which also include village and suburban districts), agricultural, and pastoral lands. Land of the second class, except in New Zealand and Tasmania, is held under conditional lease, until certain prescribed improvements have been made. These improvements include fencing and clearing, and the destruction of rabbits, wallabies, kangaroos, and dingos. It is with the pastoral lands, however, that we are especially interested; as the laws which deal with this class exclusively affect the sheep industry. As their name implies, the pastoral lands are all those suitable for grazing purposes. The governments have recognized that to allow large tracts to be acquired by the squatters, would lead to the foundation of great landed estates. Two classes of measures have been adopted to avoid this real or supposed evil. The colony of Victoria has attempted to limit the amount of pastoral land which can be held by one person, to a tract sufficient to graze from four to five thousand sheep. On the other hand, all the other colonies of the Australian continent have limited the minimum, but not the maximum amount of a holding. Experience seems to prove that neither regulation is very effective.

The second class of measures, and by far the most important, has had a great influence in the development of the colonies. In all the countries of the continent, pastoral land, as long as it remains such, can be leased, but not aleniated from the Crown. The length and conditions of the lease vary in every colony. In New South Wales we have an example of a system apparently the least favorable to pastoral interests. The lands of that colony, which are rich and mountainous on the coast, become steadily poorer as we pass toward the interior. Much of the central and western portion is little better than a desert. It is a desert, however, which irrigation is capable of turning into a garden. The land divisions are known as the Eastern, Central and Western. The former contains scarcely any pastoral land; the latter is composed of little else. Leases in the former run for only five years, with a possible extension for five years more, if in the meantime the land has not been declared agricultural, and the improvements made by the lessee are satisfactory to the Land Board. In the Western Division leases run for twenty-one years, with a possible extension of seven years more, at the discretion of the local Land Board. The lessee, however, must have made an application for such extension two years and ninety days before the expiration of his original lease. Ten years, with a possibility of five years extension, is the duration of a lease in the Central Division. In Victoria, pastoral lands, or pastoral allotments as they are called, can be leased for any number of years. This is coupled with the important proviso, that all leases must expire before December 29, 1898. A similar plan is followed in West Australia, where all leases expire simultaneously on December 31, 1907. The pastoral leases of the other two colonies of the continent, like New South Wales, have fixed terms—thirty-five years for the first lease in South Australia, and fifteen years in Queensland. In

these colonies additional leases may be taken out for ten and twenty-one years respectively. In Tasmania and New Zealand the terms of a lease are not fixed by law. As will be seen, in all the colonies of Australia, except some leases in New Zealand, when any tract of land subject to a pastoral lease is terminated, the government is required to give notice to the lessee. It is also usual to issue what is known as an occupation license, which permits the lessee to occupy his old leasehold until the land is actually selected by permanent settlers. The power to declare land open to selection, thereby arbitrarily terminating a lease, is vested in the executive portion of the Government, either in the Land Board or the Governor-in-Council. The term "Governor-in-Council" denotes the Governor by and with the advice and consent of his Executive Council. This council is composed of ministers, who are, with the exception of West Australia, responsible to the legislature. The power to terminate pastoral leases has been much abused by impecunious colonial governments. Often land has been declared open to selection for the simple purpose of forcing the squatter to buy his run. A general feeling prevails among the sheep men that greater security of tenure is needed. As long as the pastoral interests could move back into the interior and find as good land as they had left, the hardship of the sudden termination of the lease was not very great; but now, when much of the good land has been taken up by speculators, and the squatter has often to spend thousands of pounds in sinking artesian wells and building tanks, greater security of tenure is required. Recent legislation has been in this direction. The length of the lease has been increased, and in New Zealand, since the act of 1888, pastoral runs can be had for certain definite periods not exceeding twenty-one years. Some of the colonies impose, besides the rent, condi-

tions for the improvement of the run. As before intimated, New Zealand and Tasmania are exceptions to this rule. In New South Wales and in the Kimberly, and Eucla land divisions of West Australia, though no improvements are required from the lesses of pastoral lands, offers, in the shape of renewals of leases or reductions of rent, are held out to those lessees who increase the carrying capacity of their land. In West Australia there is also a penalty for not stocking within seven years. This penalty does not extend to the Southwest Division, which is an agricultural district. Queensland does not attach any conditions to the lease. In Victoria all vermin must be destroyed within the first three years, and all buildings kept in good repair. In South Australia the land must be stocked within three years, unless a certain amount of money has been expended in machinery or buildings.

There seems to be a general impression in the United States that compensation is made in Australia for improvements. This is true only in three Provinces, namely: in Victoria, Queensland and West Australia. If the pastoral lease is terminated in any way, either by lapse of time, or because the land has been declared open to selection, compensation is given for all improvements made by the squatter with the approval of the government authorities. In Victoria the amount of this compensation is limited to two shillings (48 cents) an acre. The payment is not made by the government, but by the incoming tenant. In the other colonies of Australia, on the termination of the pastoral lease from whatever cause, all improvements revert absolutely and without compensation to the Crown. The rent of pastoral leases varies greatly. In South Australia the runs are sold at auction at an upset price of two shillings and sixpence, or sixty cents per square mile, for the first lease, and five shillings, or one

dollar and twenty cents, for the second lease. The rent bid is only that for the first fourteen years, the rate of the remainder of the term being fixed by government valuation. The rest of the colonies grant their pastoral leases on fixed terms to the first applicant. The applicant, however, must be of the required age, which is seventeen years in New Zealand, and eighteen in the rest of the colonies. Married women, except those who are judicially separated from their husbands, or have their property protected, cannot become lessees. In New South Wales the terms are prescribed by the Minister, after valuation by the local Land Board. In Victoria the rent is based as before stated on the carrying capacity of the land, and is at the rate of one shilling (24 cents) per sheep. Queensland and West Australia disregard the carrying capacity, and regulate the rent by the size of the run. In the former colony the land commissioners determine the rent, which is subject to change by them every five years. For the first period the rent cannot be more than ninety shillings ($21.60), or less than ten shillings ($2.40) the square mile. In West Australia the rent varies in each land district. In the Southwest Division, the most thickly settled in the Colony, the rate is $4.87 for three thousand acres. The Eastern Division on the other hand is for the most part a trackless waste. The rent there is only one shilling and six pence (36 cents) for one thousand acres for the first seven years; five shillings ($1.20) for the next, and seven shillings and sixpence ($1.80) for the remainder of the term. The whole population of this colony is only 42,137, or about three to every hundred square miles of territory. Eight-tenths of the land is practically uninhabited, much is unexplored, and the greater part is a sandy desert, broken only by salt lakes and dismal marshes. The climate of the northern section is excessively hot, and even in the capital, Perth,

the thermometer, as in other parts of Australia, not infrequently rises several degrees above one hundred Fahrenheit.

As before stated, the sheep are not all kept in enclosed paddocks. On account of the sparseness of the grass, and the cheapness of Chinese and aboriginal labor, many flocks are herded. The sheep themselves are the poorest in Australia, being sometimes subject to scab, while the average weight of fleece is less than four pounds of unwashed wool. The greater part of the clip is graded as combing. Mr. Burt, acting Colonial Secretary, estimates the annual cost of keeping sheep at thirty-six cents per head. This does not include interest on investment. In Tasmania the rent as well as the sale of all government lands is arranged by private contract between the Commissioners and the would be squatter or settler.

New Zealand used to be divided into separate colonies. Since their union the land laws of the once distinct colonies, and of the still smaller districts into which the islands have always been divided, have retained many of their distinctive features, some selling leases at auction, some leasing to the first applicant. In accordance with the policy of the colony, all the land districts sell and lease government land on the easiest possible terms. Besides pastoral lands proper, some colonies have specially proclaimed areas which rent on distinct terms. Thus we have the Mallee lands of Victoria. These are infested with rabbits and lie at a distance from any railway. They are let in blocks of ten and three-fourths to five hundred and eighty-three square miles in extent. The upset price at the auction is four cents per head on the carrying capacity. All vermin must be destroyed within three years. Similar to the Mallee lands of Victoria, are the scrub lands of New South Wales. These are covered by the short